



**Blue and
white-striped
heart**



Government of the Russian Federation
Ministry of Education
of the Russian Federation
Federal State Budget Educational Institution
Russian Children's Center "Ocean"

Blue and white-striped heart

Oceanic practice: the "Oceanic Squadron" squad

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The collection contains methodological materials reflecting the experience of developing and implementing additional general development programs on marine topics. The presented experience is based on the best traditions of the children's educational center, enriched with modern pedagogical technologies and reveals unique approaches to organizing and conducting a summer campaign in a children's marine camp.

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"Ocean"

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Introduction

*The sea not only launched the process of life on Earth,
it also doesn't let this life end!*
Jacques-Yves Cousteau

You are holding in your hands a book that is an attempt to analyze the still very small, but unique experience of the young naval squad "Ocean Squadron" at the Russian Children's Center "Ocean".

Federal State Budget Educational Institution "Russian Children's Center "Ocean" is the Republic of Childhood since 1983 years in the Far East of the Russian Federation, located 30 km from the city of Vladivostok on the shore of the beautiful Emar Bay. For more than 42 years, schoolchildren of different ages from all over Russia, near and far abroad countries have been gathering in the "Ocean" to immerse themselves in an atmosphere of friendship, creativity and cooperation. And it was here, when in June 2017, the naval squad "Ocean Squadron" began its work.

The key idea of the book is to reveal the path of development of the marine educational profile in the Russian Children's Center "Ocean" from the idea to the creation of a new marine squad implementing new generation programs of additional education.

This book may be useful for educators, teachers, counselors, methodologists and heads of institutions of additional education implementing maritime-focused programs.

"Ocean Squadron" is just beginning its long journey in the ocean of pedagogical ideas for the upbringing and education of children, future specialists in the maritime field!

Chapter 1.

The "Ocean Squadron" squad in the RCC "Ocean" system

The history of the emergence of the naval squad

*If you want to know something about the sea, you must be at the sea,
otherwise it is impossible.*

Maria Parr

Maritime education at the present stage of development of Russia is becoming of an increasingly important relevance. In the context of globalization occurring in the world, the realization of the potential of the Maritime education system is one of the most important areas of state activity to strengthen economic power and maintain a presence in the World Ocean.

Historically, Russia has been a great maritime power, based on its spatial and geophysical features, place and role in global and regional international relations. It is the only country in the world that owns colossal sea areas, the seas unique in their biodiversity (almost 900 species of fish, including more than 250 commercial ones, many marine mammals, shellfish and crustaceans). In the register of seaports Russia includes 63 ports, which are the part of five sea basins.

At present, the state pays great attention to the national maritime policy. According to the target settings of the "Strategy for the Development of Maritime Activities of Russia by 2030 (increasing the efficiency of the main types of maritime activities)", it is expected that maritime activities will be highly efficient, the state will develop sustainably, national interests and security of the Russian Federation will be protected and ensured in the World Ocean, and Russia's

international authority will be strengthened. One of the principles of the national maritime policy is to preserve and improve the system of personnel training, education and upbringing of young people.

It is in the interests of the state, society, and business in maritime activities to effectively use the potential of the maritime education system (pre-professional, primary, professional) as an opportunity to affirm in society the values and norms of behavior that focus on maritime activities. This task can only be accomplished within the framework of a continuous maritime education system formed in a coastal region, which is a "development site" (the term was introduced by G. V. Vernadsky) for the country's population, historically prone to maritime activities.

All this gives special significance to additional education of a marine profile in Primorsky Krai of the Russian Federation in the Federal State Budget Educational Institution "Russian Children's Center "Ocean" (hereinafter referred to as RCC "Ocean"), which is located in a unique geographical location on the shore of the Sea of Japan, in the picturesque Emar Bay.

The "Development Program of RCC "Ocean" for 2014-2020" defined the strategic direction of state policy for the development of the Center as a leading organization for additional education for children at the all-Russian level. And for its implementation, a list of tasks and directions was presented, which expands and modernizes the possibilities for creating a unique platform for organizing additional education, upbringing and health improvement for children.

According to the Article 2.14 of the Federal Law of the Russian Federation of 29.12.2012 No. 273-FZ "On Education in the Russian Federation", "additional education is aimed at the formation and development of creative abilities of children and adults, meeting their individual needs for intellectual, moral and physical improvement, forming a culture of a healthy and safe lifestyle, strengthening health, as well as organizing their free time. Additional education for children ensures their adaptation to life in society, professional orientation, as well as identifying and supporting children who have demonstrated outstanding abilities".

In addition, the state program "Patriotic education of citizens of the Russian Federation for 2016-2020" was aimed at all age groups of the population while maintaining the priority of patriotic education of

children and youth, and also indicated the need to improve educational, research and patriotic work with children, including in the maritime direction, as part of the history and culture of Russia.

In connection with these principles of state policy, in 2016 the Russian Children's Center "Ocean" it was planned to create a "Children's Sea Flotilla" as a unique educational offer, an element of primary maritime education.

Since that time, active and continuous work has been carried out to create an educational complex that provides basic maritime education, which includes external (spatial environment) and internal (content) educational components.

The main educational goal of the "Ocean Squadron" squad was conceived as developing interest in the sea and maritime affairs, creating conditions for the self-realization of the child's personality in the process of introducing him to activities at sea, career guidance for high school students through the formation and development of professional skills related to the study and development of the sea, attracting young people to maritime specialties and the development of the Far East (A. B. Kramar, Head of the Ecological and Biological Center of the Russian Children's Center "Ocean").

The planned areas of activity in the Ocean Squadron programs to achieve the goal were:

1. The creation of the "School of Cabin boys" and "Sea Practice", which will reveal the history of the navy to the participants of the sea programs, will allow them to master the skills of sea professions, experience in practice a sailing and rowing trip at sea, and experience a special atmosphere and team spirit in joint activities.
2. The creation of the Marine Technopark was seen as the development of programs in marine and underwater robotics, engineering, 3D modeling and prototyping, an autonomous weather station, etc.
3. Creation of the "School of Survival" as conditions for the comprehensive development of the individual's potential and increasing the ability to adequately respond in extreme situations, the formation of a healthy lifestyle, since in the context of additional education there was a need to build such a course on life safety that would fill the gaps in the

school program on Life Safety and at the same time would significantly expand this course. It would supplement it with practical skills not only of safety in specific cases and situations, but also contributing to the comprehensive development of key competencies of the individual ("Robinsons of the 21st century", tourist skills, orienteering; obstacle course, etc.).

4. Creation of the "Sea Garden" and "Sea Kitchen" as an educational complex for marine farming, the study of plants and seafood, the culture of cooking, and the expansion of understanding of human ecology.

The creation of such an educational environment would allow a child – a participant in the program – to be immersed in the life of a sea crew, develop unique skills and expand the scope of his interests, and promote the development and socialization of children.

The opening of the "Ocean Squadron" squad at the Russian Children's Center "Ocean" took place on June 5, 2017.

Peculiarities of the "Ocean Squadron" squad

Serova E. P., Kravtsov V. V.

"A squadron is a part of a navy consisting of a certain number of military vessels of different types (battleships, cruisers, minelayers, military transports, etc.), having some general purpose of a military or peaceful nature and placed under the command of one commander". "The "Ocean Squadron" is considered a certain union of ships (crews) that, under the flag of the "Ocean", set out on an autonomous voyage" (M. N. Zhivozhenko), and this vision of autonomy is reflected in the organization of the squad's activities.

The "Ocean Squadron" squad is presented as a maritime profile in the general system of the Russian Children's Center "Ocean", is an independent unit, defines and consolidates its mission, goals, objectives, features, regulatory and methodological mechanisms for the formation of a single educational and health space that creates conditions for the personally oriented development of children through a variety of activities related to maritime themes.

The mission of the "Ocean Squadron" squad is to organize additional education, upbringing and health improvement for children aged 11 to 17 years through developing an interest in the sea and maritime affairs, "testing themselves" and career guidance in maritime professions, where the student will receive knowledge about the world and about themselves, the ability to act and interact, successful experience of intellectual and creative activity, which will become an incentive for their further personal and, possibly, professional development.

The "Ocean Squadron" squad is to create a unique maritime-focused platform for organizing additional education, upbringing and health improvement for children aged 11 to 17, implementing a new generation of additional general education programs, substantively related to the marine theme, combining elements of education (the core of which will be basic maritime education), health improvement and recreation.

Tasks of the "Ocean Squadron" squad:

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1. Creation of a unique platform for organizing additional education for children aged 11 to 17 years.
2. Development and implementation of a new generation of additional general education programs on maritime topics, taking into account the following: modularity of programs, which will allow for a qualitatively new level to address issues of children's socialization, and also include such elements as identifying interests and the child's abilities, immersion in the environment, portfolio formation, career guidance with the participation of higher education institutions, combining elements of education, health and recreation, as well as the development of a student's established and sustainable interest in maritime affairs.
3. Development and implementation of thematic programs of additional education, master programs on marine topics, the modules of which will be ranked by levels, which will allow them to be used in teaching children with different levels of preparation, i. e. they will involve children already studying the relevant topics, with the participation of higher education institutions and general education institutions, and will also consolidate a distance module aimed at providing opportunities for the child to implement an individual project in his general education institution that corresponds to his area of interest.
4. Development and implementation of a set of measures to form an individual route for the development of a child's personality.
5. Participation in the implementation of measures to ensure continuous support for the process of individual development of a student in the territory of his residence, who has completed an additional general education program.

The "Ocean Squadron" squad is an innovative platform located in a unique geographical space (on the coast of the Sea of Japan, in the picturesque Emar Bay), implementing the marine profile of education in the general system of the RCC Ocean for children aged 11 to 17 years, and has a number of features:

1. Marine-themed focus of the squad's activities. Unique material resources, multidisciplinary level of counselor training, involvement of specialists from maritime

universities and clubs as counselors allow the squad to participate in any programs developed in the Russian Children's Center "Ocean", while maintaining the marine theme.

2. The squad operates during the navigation season of small-sized fleet in Primorye (May–October). Its material and technical base and the availability of its own additional education programs allow it to create and conduct autonomous thematic educational programs, but, if necessary, use the opportunities for network interaction with other units of the Russian Children's Center "Ocean" to achieve its goals to the maximum.
3. Immersion of students in a game environment simulating naval life. The created educational environment allows a child – a participant in the programs – to be immersed in the life of a naval crew, to develop unique skills and expand the scope of his interests. The material and technical base of the squad is designed to simulate the conditions of life on a naval voyage.

The resource base is a set of basic components necessary for the production of a specific cultural product, goods or services. The availability of resources determines the production potential of subjects of socio-cultural activity, the real possibility of implementing socio-cultural projects and initiatives.

The resource base for the implementation of thematic programs of additional education on marine topics is indicated in Table 1.

Table 1 – Resource base for the implementation of thematic programs of additional education on marine topics

"Ocean Squadron" squad	Department of additional education	School
– Rowing and sailing vessel YAL-6 (4 units); – centerboard boats of the Cadet and Optimist classes; – simulator for training small SCS vessel navigators (small vessel simulator);	Thematic circle: – "Sailing"; – "3D modeling"; – "Robotics" (bathyscaphe); – "Radio communication";	– Geography; – astronomy; – literature; – history; – biology; – chemistry; – physics;

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"Ocean Squadron" squad	Department of additional education	School
– water rescue equipment; – radio equipment for transmitting data over a radio channel; – navigation and navigation equipment; – rescue boat "Nautilus" (BL-800 according to VM classification); – red rescue suit Hansen Protection Sea Eco Solas and protective suits	– "Observatory"; – "Ecology"; – "Mariculture"; – "Cabin boys"; – "Marine all-around"; – "Survival"	– ecology; – mathematics; – computer science; – foreign languages

The squad's resource base is expanding through partnerships with maritime universities, clubs, etc.

Officially, the following people work for the "Ocean Squadron" squad:

- senior staff: squad leader, deputy squad leader, two senior counselors;
- counselor staff: 21 people;
- since 2020 there are positions for a sailing instructor, a ship's carpenter;
- representatives of the psychological and pedagogical (psychologist) and scientific and methodological (scientific consultant) departments are assigned to support the work of the squad during the summer period.

The squad is an experimental regional platform, on the basis of which different variable programs for maritime education of teenagers are created, innovative educational methods are developed to be distributed within the subjects of the Russian Federation, where there are centers of additional education on similar topics.

Programs of the squad "Ocean Squadron" are aimed at changing the participants' views on the role of the sea in their own lives and in the life of modern humanity; the participants in the shifts, in turn, meaningfully supplement and modify the programs.

Team of the "Ocean Squadron" squad

Zhivozhenko M. N., head of the "Ocean Squadron" squad

A team is a group of people working towards a common goal, influencing each other's behavior, and perceiving themselves as a unique unity. A team within an organization is a collective (managers, departments, teams, etc.) that has achieved a high degree of cohesion and productivity for the benefit of the enterprise.

Teams achieve better results in many areas of human activity than individuals due to the synergistic effect: the sum of the efforts of team members acting together exceeds the sum of the results obtained by each of them separately.

Who is the Squadron leader?

RCC "Ocean" is a modern children's center that has been forming its own way of life with rules, rituals and traditions for decades. With the appearance of the center itself in 1983, the "Istok" counselor detachment, the first composition of which was represented by experienced pioneer workers from among the employees of the All-Union pioneer camps "Artek" and "Orlyonok".

For the dynamic development of the counselor team, year-round squads conduct friendly rivalry in their professional activities. The attachment of counselors to one of the squads determines its characteristics: behavior, communication and interaction with other units.

In 2016, the management of the Russian Children's Center "Ocean" decided to create a new team, for which an important task was set at the development stage – to become a specialized (thematic) camp within the Center, and accordingly, using many years of "golden" experience, it had to adopt the best from everyone and embody it in itself, so that this synergistic effect would allow creating new opportunities in the organizational, managerial and methodological spheres.

For a squad with a maritime profile in the RCC "Ocean" system, it is necessary to create a team that metaphorically repeats the essence of a ship's team that finds itself on an autonomous expedition, where you can only count on those who are next to you.

Having made the way from a counselor to the head of the squad, we determine that the main thing in any children's institution is a

teacher, and in the camp – this is a counselor, but not as an animator, but as a teacher. Accompanying children throughout the shift, first of all, he is a companion and friend, and a person who is always close to children, but at the same time in his work he must implement an educational and upbringing function. It depends on the counselor, what kind of relationship will develop in his team, and what moral standards, life attitudes, values and priorities will prevail. The child "sees" everything happening around through the eyes of his counselor, and the success of the implementation of everything planned depends on how the counselor himself sees everything happening around. For productive activity, I chose my communication style with counselors not as "boss – subordinate", but as "colleague – colleague". The principle of "equal to equal" allowed us to create the most favorable atmosphere for joint activities. Since the work of the Ocean Squadron squad was just beginning, the contribution of each team member was important.

In the practice of the Russian Children's Center "Ocean", it is often customary, especially in the summer, to work together with colleagues from other squads, but since the "Ocean Squadron" has secured for itself a maritime profile of activity, which must always be adhered to (in squad and squad events, as well as in the shift program as a whole), the counselors of the "Ocean Squadron" began to develop events independently. Specialists in maritime affairs were not provided for in the staff of the Russian Children's Center "Ocean". Then there was a need to look for partners from specialized maritime higher educational institutions of the city of Vladivostok. Thus, the squad counselors (crew petty officers of the "Ocean Squadron"), along with fighters of the pedagogical squads of the Russian student movement, included cadets of the Pacific Higher Military Naval School named after S. O. Makarov and the Maritime State University named after G. I. Nevelskoy.

Such filling of the teaching staff has become a feature of the squad with the motto: "To cultivate love for the sea in a child, you need to be a fan of it yourself – there is no other way!" The teaching staff of the "Ocean Squadron", complementing and enriching each other, has become a unique team specializing in maritime affairs in the Russian Children's Center "Ocean". An important condition for working in the "Ocean Squadron" is complete immersion and inclusion in the subject of the program and the squad as a whole, each of the

"Squadron" senior officers is a unique bearer of "marine knowledge". After all, how can you not believe the stories of the counselor about the uniqueness of the naval profession, if he is the senior officer of the yawl, under whose personal leadership the participant of the shift goes to sea for the first time? After all, how can you not believe the stories of the counselor about the uniqueness and necessity of the profession of a naval sailor, if he is a career officer of the Navy of the Russian Federation and has already linked his life with serving the Motherland?

The leaders of the "Ocean Squadron" wear a leader's uniform during their leisure activities, and as soon as it's time for seafaring, they change into a naval uniform. Over the eight years of the squad's work, the naval symbols and terminology, boating practices and majestic attitude to the sea have allowed us to understand our responsibility to the children and ourselves. The leader:

- bears personal responsibility for the knowledge and meanings he conveys to children;
- is ready to learn, develop myself and share new things with others;
- is ready to experiment and ultimately create and implement new forms and formats of work with children;
- is immersed in the idea of the squad;
- remains in touch with the child even after the end of the shift at the Russian Children's Center "Ocean", and, accordingly, helps him achieve his goals.

It should be noted that for many counselors who tried their hand at the "Ocean Squadron", such working conditions in the squad turned out to be difficult, and an unbearable burden, and they "went ashore", but those who "stayed on board" were able to create the image of the "Squadron" petty officer, which received a logical design during the summer campaign of 2019 and is now already a brand. The "Squadron" petty officer is a responsible young and promising specialist in the maritime industry of our country.

* * *

Serova E. P., scientific consultant, PhD, associate professor

Study of the most successful teams in business, non-profit public and other organizations, as well as in education, has revealed a number of characteristics common to them, listing which we will track the features of the "Ocean Squadron" team:

1. Team members must have complementary skills. For a team to be effective, its members must have three types of skills: professional (cadets of naval schools), leadership (organizers – senior teaching staff) and communication (counselors).
2. The presence of a synergetic effect, the essence of which is that the result of the efforts of team members is greater than the arithmetic sum of the results that members of the team could have obtained if they were not united into a team, the search for partners in the form of cadets of naval schools and their joint work with the teaching staff of the Russian Children's Center "Ocean" created a unique teaching staff specializing in the maritime profile.
3. Common mission (understanding the purpose of the team). Each highly effective team has a common mission that inspires its members. The concept of a mission is much broader than just goals; it expresses the meaning of the existence of this team, its social purpose. The Ocean Squadron team is fully immersed in the theme of the squad and is aware of the responsibility to children (from 11 to 17 years old) and society: for the space they created for military-patriotic education of youth; for honesty and truthfulness to themselves, developing an interest in the sea and maritime affairs, professionally orienting in professions related to maritime topics; for what knowledge about the world and about themselves the program participant will receive, whether he will be able to transform it into the ability to act and interact; for successful experience of intellectual and creative activity, which will become an incentive for further personal development of both the program participants and the members of the Ocean Squadron team.

4. Team spirit, interdependence and mutual support of team members. An effective team is a team with a strong spirit, feeling its value not only as a "producer of immediate benefits", but also as a structure with deep meaning and its own will to achieve and overcome. Team spirit provides support in difficult situations and is a powerful source of motivation, concentration, determination and stability, affects all other aspects of teamwork, its goals, values, behavior, distribution of roles and responsibilities. Team spirit is an emotional charge that makes people happy. It makes it possible to enjoy even routine work, since it becomes a condition for being in a team of friends and like-minded people.
5. Specific goals. Members of successful teams form specific goals based on the mission. Specific, measurable, realistic goals inspire people and serve as a guarantee of effective teamwork. The peculiarity of the work of the "Ocean Squadron" squad is the work in the summer season, and each of the summer periods has its own common task for the squad, in addition, the real goal of each implemented program inspires and, perhaps, even adjusts the team to one or another program.
6. General approach to work. Goals are the results of work that the team strives for. A general approach allows them to agree on the means to achieve the goals. Team members must jointly determine the scope of work and the area of responsibility of each performer, establish a work schedule, and discuss ways to resolve possible conflicts. This work is carried out before the start of any program: counselors are distributed among squads, key events of the shift and tasks of different modules are determined.
7. Sharing Responsibility: The final characteristic of a high-performing team is accountability at the individual and group level. Members of successful teams have both personal and shared responsibility for the implementation of the mission and the achievement of its goals. Such teams clearly understand what personal and collective responsibility is (the responsibilities of each are defined and fixed before the start of the season, before the start of the program, before

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the development of any event in the program: from a squad case to a full-fledged program).

At the Squadron, a style and brand of effective work has emerged, in the process of which the personal and professional qualities of each employee are used in the most productive way and organizational, collective and personal interests are combined.

Chapter 2.

Additional general educational development program of the "Ocean Squadron" squad by the example of "Sea Launch" program

Additional general educational development program "Sea Launch"

*E. P. Serova, scientific consultant, PhD, associate professor,
M. N. Zhivozhenko, head of the "Ocean Squadron" squad*

Program Information Card

Full name of the program	Additional general educational development program "Sea Launch"
Focus of the program	Technical
Target	Development of engineering and technical competencies of participants by means of aerospace design
The idea and brief content of the program	The Sea Launch program immerses participants in the history of domestic and world cosmonautics, various areas of aerospace and maritime education. The program provides work in research laboratories, a series of "Sea Launch" master classes, rocket launch, "Physics of Space" exhibition-advisor, "Important Milestones in Space Exploration" thematic hour, meetings with interesting people, marine practice, sailing on the GPS YAL-6 and the centerboard boat of the "Optimist" class, events dedicated to the celebration of the 80th anniversary of Victory in the Great Patriotic War
An expected result	Individual progress of program participants: 1. Communicative competence: development of the ability to effectively interact with others, teamwork.

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	2. Design competence: mastering the fundamental scientific principles of the theory of gravity and jet propulsion, as well as the applied use of satellites and descent vehicles; developing the skills necessary for independent solution of applied problems related to design activities in the field of space topics; developing practical skills in carrying out research and development work within the framework of the direct implementation of a specific technical project. 3. Reflective competence: understanding the experience gained for one's future life. 4. Applied competencies (mission of the "Ocean Squadron" squad): development of interest in the sea and maritime affairs; basic knowledge in the field of maritime affairs (rigging, navigation, business; signal work; fire training; mooring operations; safety of navigation), primary sea practice rowing and sailing practice on: a rowing and sailing vessel of the YAL-6 boat type, a racing single-seater centerboard boat of the international class "Optimist" and a single-seater sports centerboard boat/yacht of the Olympic class "Finn", basic applied skills in the field of shipbuilding and specialized pre-professional training in the field of "water transport" (during the construction and launching of a racing single-seater centerboard boat of the international class "Optimist")
Proposed product	Design and implementation of innovative educational projects within the framework of space topics with subsequent implementation in educational institutions, institutions of additional education of the Russian Federation. Construction and launching of the racing single-seater centerboard boat of international class "Optimist"
New about the program	The novelty of the program lies in: – using the unique capabilities of the Ocean Squadron team – a combination of scientific and technical creativity in various areas of space education and marine activities, as well as active recreation for teenagers; – the possibility of expressing and "testing oneself" in a single scientific and information space of various areas of space education; – maintaining the relationship between the main areas of research and project activities in scientific and technical creativity, as well as the formation of the civic identity of adolescents through inclusion in maritime affairs aimed

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	at fostering responsibility, a sense of duty to oneself, teammates, readiness and ability to act in an emergency out at sea
Target group characteristic	Students aged 13–17, winners, prize winners, laureates of scientific and technical competitions, Olympiads, championships, conferences on space topics, winners of the competitive selection of a thematic partner
Staffing of the program	Federal State Institution "Pacific Fleet Management", State Corporation for Space Activities "Roscosmos", Federal State Budgetary Educational Institution of Higher Education "Amur State University", Federal State Budgetary Educational Institution of Higher Education "Pacific Higher Naval School named after S. O. Makarov", regional public organization "Vladivostok Maritime Assembly"
Principle for assessing the effectiveness of program implementation	Observation, interview (individual or group), reflective questions, personal achievement map, individual educational route, self-analysis, project analysis, "Ocean Fox" diagnostic map

1. Conceptual and target bases of the program

Relevance. In a rapidly changing world, our country continues to hold the lead in global cosmonautics, which remains an area where the most complex technologies and the latest scientific achievements are used.

Currently, a whole detachment of expeditionary vessels of the measuring complex provides control of flights of manned spacecraft and orbital stations, provides communication with crews and satellites, trajectory and telemetry measurements. It participates in rocket tests, controls launches of distant spacecraft to the planets of the Solar system. In order to develop "international space" at a high level with benefit for our own economy, highly qualified, competitive specialists at the world level are needed, who should be trained from childhood (including in the field of maritime affairs). The demand for new specialists in this area of the maritime industry now and in the future (in the long term) will grow.

Space education of schoolchildren is becoming especially relevant as a system for training future specialists in the space and marine industry and, in addition, a system that fosters responsibility for one's people, country, and planet. Space and marine education of students goes beyond the framework of compulsory school education and is implemented in the system of additional education, both in classes in study groups at institutions of additional education and in classes outside of school hours. Additional education is a motivated education received by an individual beyond basic education, realizing his or her need for knowledge and creativity, as well as for self-determination in subject, social, professional, and personal terms.

The conceptual idea of the program is the awakening of new formations and personal qualities of teenagers in the process of their inclusion in various types of activities (project, communicative, reflexive) based on their socially conditioned interests through overcoming difficulties (as overcoming own weaknesses); providing a range of opportunities for each teenager to demonstrate intellectual, technical and creative abilities, initiative, the ability to achieve results (as their individual progress) and receiving pleasure and joy from what has been achieved "here and now".

The additional general educational, general developmental, social and pedagogical program "Sea Launch" has been held at the Russian Children's Center "Ocean" for several years now. The program is based on the initiative to organize scientific research project activities of schoolchildren in various areas of space education. Activities within the program are considered as a tool for developing children's interest in professions in the space sphere, project activities in the field of cosmonautics, identifying and supporting gifted children for further advancement in the engineering, scientific and technical industry.

The Sea Launch program is focused not only on high-quality active summer recreation, but also on the learning experience based on the Quest to Learn principle (literally, "educational quest"), i. e. through an evolving game, where participants "try themselves" in professional fields that are in demand in society, namely, they will become sailors, designers, engineers, programmers, shipbuilders. The delayed result of the program (aftereffect) is the choice of a profession in the field of scientific navigation with a clear understanding that this path was started at the Russian Children's Center "Ocean".

During the shift, participants attend the Sea Launch program (shift profile) from the Federal State Budgetary Educational Institution of Higher Education "AmSU", where they immerse themselves in an educational quest of the leading areas of training specialists in the field of aerospace and water transport: "Rocket Science. Launch from Water", "Satellite Science", "Space Drone", etc. At the same time, the Ocean Squadron team traditionally holds the "Sea Science" course, where participants get acquainted with the sea, the variety of marine professions and the basics and life of a person at sea, and conditions are created for self-realization of the individual in the process of familiarization with marine sports and marine training.

The program is implemented on the basis of the "Ocean Squadron" squad, which has a large resource of research, recreational activities, as well as opportunities for professional orientation of teenagers to maritime professions. This partnership program is organically included in the conditions of the "Ocean Squadron" and can combine marine and space themes.

The main problem that this program solves is the creation of a thematic environment that provides teenagers with the opportunity to realize themselves in various marine activities and creates conditions for the development of teenagers' interest in professions in the space sphere. It provides them with opportunities to test their own strengths, find themselves, find friends, a significant Other, demonstrate creative initiative, leadership qualities, friendliness, the ability to work in a team and find a way out of a situation of uncertainty. These are the stages of socialization and personalization of teenagers as an active living of their lives in new conditions for them and the exit to individualization as a significant future life path for each teenager.

The novelty of the program lies in:

- in using the unique capabilities of the "Ocean Squadron" squad – a combination of scientific and technical creativity in various areas of space education and marine activities, as well as active recreation for teenagers;
- in the possibility of expressing and "testing oneself" in a single scientific and information space of various areas of space education;
- in maintaining the relationship between the main areas of research and project activities in scientific and technical creativity, as well as the formation of the civic identity of adolescents through inclusion in maritime affairs aimed at fostering responsibility, a sense of duty to oneself, teammates, readiness and ability to act in an emergency out in the sea.

The pedagogical expediency of the program is due to the dynamic growth of the aerospace industry and the high demand for young specialists with a wide range of knowledge and a willingness to search for and implement innovations. All educational and practical classes, in addition to the opportunity for students to obtain knowledge and skills in a particular area, are simultaneously aimed at developing an active civic position, a patriotic, state worldview, and a level of civic responsibility for one's fate.

The program will be useful for advancing the experience of the Russian Children's Center "Ocean" in this area within the constituent entities of the Russian Federation.

The goal of the program is to develop the engineering and technical competencies of participants using aerospace design tools.

Objectives of the program:

1. To create a communication environment that meets the needs of each participant in cooperation and promotes teamwork and crew coherence (communication competence).
2. To create conditions for mastering the fundamental scientific principles of the theory of gravity and jet propulsion, as well as the applied use of satellites and landing vehicles; to develop the skills necessary for independent solution of applied problems related to project activities in the field of the chosen specialization (rocket science, robotics, etc.), and also to develop practical skills in carrying out research and development work within the framework of the direct implementation of a specific technical project (design competence).
3. Involving teenagers in situations of understanding the experience gained for their future life (reflexive competence).
4. Assistance in career guidance of young people in maritime professions, gaining experience in maritime practice, basic knowledge in the field of maritime affairs and shipbuilding, which will become an incentive for further personal development and interest in the sea, maritime affairs (mission of the "Ocean Squadron" squad).

Expected results (individual progress of program participants):
new developments in communicative, reflective and design competencies:

- development of the ability to effectively interact with others, teamwork;
- mastering the fundamental scientific principles of the theory of gravity and jet propulsion, as well as the applied use of satellites and landing vehicles;
- development of skills necessary for independent solution of applied problems related to project activities in the field of space topics;
- development of practical skills in carrying out research and development work within the framework of the direct implementation of a specific technical project;

- understanding the experience gained for your future life;
- development of interest in the sea and maritime affairs; basic knowledge in the field of maritime affairs (rigging, navigational affairs; signal work; fire training; mooring operations; navigation safety), primary sea practice – rowing and sailing practice on: a rowing and sailing vessel of the YAL-6 boat type, a racing single-seater centerboard boat of the international "Optimist" class and a single-seater sports centerboard boat/yacht of the Finn Olympic class, basic applied skills in the field of shipbuilding and specialized pre-professional training in the field of "water transport" (during the construction and launching of a racing single-seater centerboard boat of the international "Optimist" class).

Expected product: design and implementation of innovative educational projects within the framework of space topics with subsequent implementation in educational institutions, institutions of additional education of the Russian Federation. Construction and launch of the racing single-seater centerboard boat of the international "Optimist" class.

The social significance of the program is aimed at expanding the understanding of teenagers: about space, space education, professions in the space sector, project activities in the field of cosmonautics; about the sea as a system of coastal and maritime activities through the popularization of maritime professions and the practical implementation of maritime affairs.

The practical significance of the program consists of:

1. The teenager's choice of various specializations in space education (rocket science, robotics, etc.) and the preparation of projects within the framework of space themes, as well as "trying oneself" in maritime affairs.
2. The additional general educational, general developmental, social and pedagogical program "Sea Launch" or its fragments can be used in institutions of additional education implementing programs of space education and primary maritime education¹.

¹ The application provides information on the master program "Young sailors of the Russian Fleet", implemented at the Russian Children's Center "Ocean", which can be considered as an element of primary maritime education.

Regulatory and legal support for the program regulated by decrees of the President of the Russian Federation, normative legal documents of the Government of the Russian Federation, defining modern strategies for the development of additional education for children, the development of the education system and upbringing of the younger generation. Such as:

1. Federal Law of the Russian Federation "On Education" dated 29.12.2012 No. 273-FZ.
2. Decree of the President of the Russian Federation of 29.05.2017 No. 240 "On the declaration of the Decade of Childhood in the Russian Federation".
3. Resolution of the Government of the Russian Federation of 26.12.2017 No. 1642 "On approval of the state program of the Russian Federation "Education Development".
4. Methodological recommendations of the Ministry of Education and Science of Russia dated 22.01.2015 No. DL-1/05vn on the development of basic educational programs taking into account the relevant professional standards.
5. Resolution of the Chief State Sanitary Doctor of the Russian Federation dated 04.07.2014 No. 41 "On approval of SanPiN 2.4.43172-14 "Sanitary and Epidemiological Requirements for the Arrangement, Maintenance and Organization of the Operating Mode of Educational Institutions for Supplementary Education of Children".
6. Strategy for the development of education in the Russian Federation for the period up to 2025, approved by the order of the Government of the Russian Federation dated 29.05.2015 No. 996-r.
7. Order of the Government of the Russian Federation of 31.03.2022 No. 678-r (as amended on 21.10.2024) "On approval of the Concept for the development of additional education for children until 2030".
8. Decree of the President of the Russian Federation of 07.05.2018 No. 204 "On national goals and strategic objectives for the development of the Russian Federation for the period up to 2024".

9. The Maritime Doctrine of the Russian Federation, approved by Decree of the President of the Russian Federation dated July 31, 2022 No. 512.
10. Strategy for the development of maritime activities of the Russian Federation until 2030, approved by the order of the Government of the Russian Federation dated 30.08.2019 No. 1930-r.
11. The State Program of the Russian Federation "Development of the Transport System", approved by the Decree of the Government of the Russian Federation of 20.12.2017 No. 1596 "On approval of the state program of the Russian Federation "Development of the Transport System".
12. Transport strategy of the Russian Federation for the period up to 2030, approved by the order of the Government of the Russian Federation dated 22.11.2008 No. 1734-r.

Brief description of the program participants. The program is attended by schoolchildren of grades 6–11, aged 12–17, interested in maritime affairs.

Thematic program selection mechanism. The program of events approved by the director of RCC Ocean is posted on the website of RCC Ocean for the participants of the thematic shift².

Organizers and partners of the program. The organizer of the program is the Federal State Budgetary Educational Institution of Higher Education "Amur State University" and Federal State Budget Educational Institution "Russian Children's Center "Ocean".

²All-Russian Children's Center "Ocean": official website. – URL: <http://ocean.org/>.

2. Conceptual and target bases of the program

Number of days	21
Age	13-17 years old
Specialization of the Additional General Educational Development Program	Technical

Item No.	Name of the part	Contents of the educational program		Number of hours
1 .	Additional education			112
including:				
1 .1.	Basic part	"My Russia" Course		1
		Opening Ceremony. Exhibition-advisor "Physics of Space"		1
		"Healthy Generation" Course		3
		Sea Launch Award Ceremony		1
		Lesson of Victory and Rituals "Competition-inspection of formation and songs "Singing in a soldier's overcoat"		1
		"School of Creative Practices" Course		12
1.2.	Profile part ³	"Seamanship" Course	"Management of small vessels" Course	12
			"Cabin boy" Course	19
			"Shipyard" Course	17
		Sea Launch Course		25
		"I am a sailor" Discussion club		1
		"Midshipmen of our Fatherland " Summer Ball		1
		Evening meeting with an astronaut		1
		"Summer in a nautical style..." Sailing regatta		3
		"Solar System" Quest		2
		Sea Battle Tournament		1
		Master class on emergency escape from a vessel		1
		Diving Master Class		1

³ The contents of the specialized courses "Small Vessel Management", "Shipyard", "Sea Launch" and "Young Sailor" are in the appendix.

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Item No.	Name of the part	Contents of the educational program	Number of hours
		"Christening of the ship" Naval parade	1
		Thematic excursion to Maritime State University named after G. I. Nevelskoy	3
		"Maritime professions of the future" Foresight session	1
		"Time of the First" Thematic hour	1
		"Nakhimov movement in Russia" Thematic hour	1
		Meeting with interesting people – "Our guests are D. V. Burakov and S. A. Vorobyov"	1
		Thematic evening of the "Flying "P" ("Living Legends")	1
2 .	Oceanic practices		56
including:			
2.1.	Basic part (variant)	"School of Active Citizen" Module	15
		"GROWTH" Module	10
		"Ocean Style" Module	15
		"My Safe Childhood" Module	10
2.2.	Basic part (invariant)	Entry and final diagnostics	2
		"Me and others" Preventive conversation	0.5
		"My Inner World" Educational talk	0.5
2.3.	Profile part	Working with the developing navigator "Ocean Fox"	3
Total			168

3. Program content

The program content is aimed at achieving the set goals and objectives and includes educational courses, meetings with representatives of the profession, presentations and a final conference within the program, squad and detachment affairs, as well as the theory and practice of maritime affairs.

This educational program is an educational quest in which program participants are formed into crews and "employed" in design bureaus to become familiar with modern forms of organizing activities in enterprises of the Russian aerospace industry and their interaction with ships of the measuring complex.

The educational quest consists of the following paths that the program participant is asked to complete in order to collect his or her pre-professional case.

The first case, "Sea and Space", is filled with activities aimed at forming an interconnected set of basic knowledge, skills, and abilities necessary for the practical implementation of independent project activities in the field of space technologies.

The second case "Sea and Profession" is filled with events aimed at popularizing maritime activities, as well as motivating and orienting students to obtain a maritime profession, introducing schoolchildren to educational institutions of primary, secondary and higher education that train personnel for maritime specialties in the city of Vladivostok and Primorsky Krai.

The third case "Sea and Skills" is filled with events aimed at creating conditions for introducing program participants to marine sports and "testing themselves" in maritime affairs.

The fourth case "The Sea and Me" is an individual constructor of the previous three cases, which the student fills in himself, and the teacher assigned to him helps him individually. At the beginning of the program, the student has the opportunity to get acquainted with all types of proposed activities and, based on the information received, creates for himself an individual educational route for attending those classes that are more important and valuable to him. This case is unique and in demand if the child has already decided on what direction will be interesting for him in the future.

All other modules are classic tools of the educational environment for all programs implemented in the Squadron squad (see Table 2).

Table 2 – Program topic areas

Directions	Events/events
Sea and space: the events aimed at expanding the participants' understanding of the need to find common ground and strive for unity as a whole despite existing differences, so that in the future in their profession they will be able to protect the international maritime order and be able to smooth out differences	– "Sea Launch" course (final event: exhibition-advisor "Rocket Launch", "Defense of final projects"); – "My Russia" course (final event: summer ball "Midshipmen of our Fatherland"); – "School of Creative Practices" course (final event: exhibition of the School of Creative Practices [SCP]); – opening ceremony; – "Physics of Space" exhibition-advisor; – Sea Launch award ceremony; – evening meeting with interesting people: astronaut; – thematic hour "Time of the First"; – thematic excursion to Moscow State University named after G. AND. Nevelskogo; – summer ball "Midshipmen of our Fatherland"; – Thematic evening of the "Flying "P" ("Living Legends"); – quest "Treasure Island"
Sea and profession: activities, motivation and orientation of students to obtain a maritime profession	– "Shipyard" course (final event: naval parade "Christening of the ship"); – "Control of small vessels" course (final event: sailing regatta "Summer in a nautical style..."); – meeting with interesting people "Our guests are D. V. Burakov and S. A. Vorobyov"; – thematic hour "Nakhimov movement in Russia"; – art club "I am a sailor"; – foresight session "Maritime professions of the future"; – naval parade "Christening of the ship"; – sailing regatta "Summer in a nautical style..."
Sea and skills: events aimed at creating conditions for introduction to marine sports	– "Seamanship" course (final event: "Sea Battle" tournament); – "Healthy Generation" course (final event: "Ocean Cross"); – diving master class; – Master class on emergency escape from a vessel; – competition of formation and song "Songs in a soldier's greatcoat"; – Sea Battle tournament; – "Sports Time"; – "Ocean Cross"; – sports competitions; – friendly matches

Directions	Events/events
The Sea and Me: events aimed at creating conditions for introducing people to marine sports	– Informational and Educational Materials "Navigator" (final event: exhibition-advisor "Final projects"); – "Sea and Space" module; – "Sea and Profession"; – "Sea and Skills"
Ocean style: traditional tasks performed during the organizational, main and final periods	– "An Evening of Thanks"; – "Dating night"; – "Opening of Navigation Evening"; – "The Adventures of Solnyshkin" counselor's performance
	– Neptune Day; – game on the terrain "25 steps on the map"; – karaoke hour #IN_CHART; – open-air cinema; – competitive and game auction program "Let's go"; – Collective creative activity "Message in a Bottle"; – musical hour "The waves sing to us..."; – the meeting bonfire / the farewell bonfire / the half way mark bonfire "My Universe"; – entertainment talk show "Experiment 3.0"; – crew get-togethers
My Safe Summer: events aimed at developing competencies in the field of life safety	– Crew meeting: "The Squadron is in a state of emergency"; – safety briefing during maritime practice; – medical examination; – "Captain's Hour" talk show; – Fire-extinguishing systems (cinema / squad / canteen / sports complex); – safety and fire safety briefing; – individual work; – excursions around the territory; – briefing on the trip
School of Active Citizenship: events aimed at developing children's initiative and independence	– "Gathering at ship" workshop; – collection-planning; – Children's games "Moving along the intended course"; – Home concert "Among friends"; – self-preparation for events; – crew meeting "The Squadron is in a rush" (summing up the results of the crew); – "Straightforward question to the Captain" talk show

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Directions	Events/events
GROWTH: events aimed at creative self-realization of program participants	– Modern communication lesson "Russian pier"; – The music of Vladivostok (pop orchestra "Nocturne"); – competition and review of formation and songs "Songs in a soldier's greatcoat", dedicated to the 80th anniversary of the Victory in the Great Patriotic War of 1941–1945; – concert of the ensemble "Boyevoe Bratstvo" (Combat Brotherhood); – evening of marine traditions "Sea and space – two infinities"; – Home concert "Among friends"; – "Experiment 3.0" entertainment talk show

The interaction of adults and children, program participants, in joint activities, building relationships of acceptance and understanding in the process of implementing the program are formed using the following forms and methods (see Table 3).

Table 3 – Forms and methods of interaction with the program participants

Form of organization and implementation of the program	Forms of organization: group, team, individual. The formats of the events include workshops; master classes, training courses, foresight sessions, presentations of specialized research and creative projects, as well as practical training sessions using special materials (boats, yachts, simulators, training complexes), and going out to sea
Methods and techniques	Verbal methods: explanation, story, conversation, debate, discussion. Visual: demonstration of photo and video presentations, literary works, photo and video, display of special materials (boats, yachts, simulators, training complexes). Practical: interactive classes, master classes, practical games, tournaments, intellectual and creative games, project competitions. Design and modeling according to the program profile. Going out to sea on a boat (sea voyage), under sail (sailing regatta)
Teaching aids	Scripts, photographs, handouts, didactic materials, video/photo presentations

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Formats of the organizational period	Games: for getting to know each other, for gathering, for identifying a leader, for relieving emotional tension, for team building
Type and form of control, form of presentation of results	Types of control: current (reflection on the results of each event); final (diagnostic monitoring material, reflection on the bonfires, summing up the results and outcomes of the program at the training camp). Form of presentation of results: presentation of products, projects, models

4. Organization of program implementation

Organizational activities for the preparation of the program begin with the work of the project office. Distribution tasks between the representatives of the Project Office are approved by Deputy Director for Educational Activities (see Table 4).

Table 4 – Distribution of tasks between representatives of the project office (Sea Launch program)

Project office representative	List of tasks
Manager / Chief of the Squadron	– Development of the program curriculum; – preparation of a plan of the main educational events, explanations of educational events; – general management of the implementation of the Program; – adjustment of the Program during its implementation in the event of risks being identified; – consulting all creative groups on the content of squad affairs; – prompt resolution of all issues that arise for children regarding the implementation of the Program; – preparation of a consolidated analytical report on the Program
Scientific advisor	– Program Development; – design of the Program and its approval; – development of a system for monitoring the quality of the Program and its implementation; – to adjust the Program during its implementation in the event of risks being identified; – preparation of a consolidated analytical report on the Program
Deputy Chief of the "Squadron" squad	– Compliance with the plan of major educational events; – making proposals for adjusting the Program in the event of risks being identified; – high-quality organization of detachment events; – high-quality organization of team events; – analysis of key educational events with children

Project office representative	List of tasks
Head of the Department of General and Additional Education	– Taking into account the subject matter of the Program in the educational process; – making proposals for adjusting the Program in the event of risks being identified; – preparation of an analytical report on the results of the implementation of the Program
Head of the Department of Organization and Conducting Events	– Taking into account the subject matter of the Program when preparing volunteer events; – preparation of distribution of creative groups; – if possible, inclusion of children participating in the Program in the creative groups; – adherence to the plan of key educational events; – high-quality organization of team events; – preparation of an analytical report on the results of the implementation of the Program
Head of the Department of Physical Culture, Technical and Water Sports	– Organization of physical education and sports activities in accordance with the plan of the main educational events. – Preparation of an analytical report on the results of the implementation of the Program
the Department of Psychological and Pedagogical Support	1. Psychological and pedagogical support of the program. 2. Preparation of an analytical report on the results of the implementation of the Program

To achieve the program goal, an algorithm for solving the program problems is constructed, presented in Table 5, which is an indicator of the unification of its structural elements, allowing one to see the integrity of the program being implemented.

Table 5 – Implementation of program objectives in the process of implementing the program content

Item No.	Tasks/ competencies	How do we solve them?	Expected result	Diagnostics
Communicative competence				
1.	Create a communicative environment that meets the needs of each	"Sea and Space" module, "Sea and Profession" module, "Sea and	Development of the ability to effectively interact with others,	Targeted mandatory questions for the questionnaire of the department of

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Item No.	Tasks/ competencies	How do we solve them?	Expected result	Diagnostics
	participant in cooperation and promotes the organization of teamwork and team coherence (communicative competence)	Skills" module, "STEP" module, "GROWTH" module	teamwork	psychological and pedagogical support. Methodology for assessing the level of sociability (by V. F. Ryakhovsky)
Project competence				
2.	To create conditions for mastering the fundamental scientific principles of the theory of gravity and propulsion, as well as the applied use of satellites and landing vehicles; to develop the skills necessary for independent solution of applied problems related to project activities in the field of the chosen specialization (rocket engineering, robotics, etc.), and also to develop practical skills for performing research and development work within the framework of the direct implementation of a specific technical project (design competence)	"Sea and Space" module, "Sea and Profession" module, "Sea and Me" module, "STEP" module, "GROWTH" module, "Sea and Profession" module, "Sea and Skills" module	Mastering the fundamental scientific principles of the theory of gravity and jet propulsion, as well as the applied use of satellites and landing vehicles. Formation of skills necessary for independent solution of applied problems related to project activities in the field of spacecraft. Develop practical skills in carrying out research and development work within the framework of the direct implementation of a specific technical project	Questionnaire. Participant observation of participation in the development and protection of projects

Item No.	Tasks/ competencies	How do we solve them?	Expected result	Diagnostics
Tasks of the "Ocean Squadron" squad				
3.	Assistance in career guidance of young people in maritime professions, gaining experience in maritime practice, basic knowledge in the field of maritime affairs and shipbuilding, which will become an incentive for further personal development and interest in the sea, maritime affairs (mission of the squad "Squadron")	"Sea and Space" module, "Sea and Profession" module, "Sea and Skills" module, "Sea and I" module	Developing interest in the sea and maritime affairs; basic knowledge in the field of maritime affairs (rigging, navigation, signaling; fire training; mooring operations; navigation safety), primary maritime practice rowing and sailing practice on: a rowing and sailing vessel of the YAL-6 type, a racing single-seater centerboard boat of the international "Optimist" class and a single-seater sports centerboard boat/yacht of the Olympic class "Finn", initial applied skills in the field of shipbuilding and specialized preprofessional training in the field of "water	Questionnaire. Map of interests. Maritime practice

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Item No.	Tasks/ competencies	How do we solve them?	Expected result	Diagnostics
			transport" (during the construction and launching of a racing single-seater center-board boat of the international "Optimist") class	
Reflective competence				
4.	Involving teenagers in situations of understanding the experience gained for their future life (reflective competence)	"Sea and Space" module, "Sea and Profession" module, "Sea and Skills" module, "Sea and I" module, "MBD" module, "STEP" module, "GROW-TH" module	Understanding the experience gained	Reflective Diary. Map of Interests

The distribution of responsibility for the formation of competencies between the subjects of interaction is presented in Table 6.

Table 6 – Distribution of the "zone" of responsibility for the formation of competencies between the subjects of interaction

Subjects of interaction	Communicative competence	Reflective competence	Design competence
The "Squadron" team is responsible for developing the initiative and creativity of teenagers, team and individual project activities of teenagers.	In the format of this program, one of the most important characteristics is the ability to set and solve certain types of communication tasks: – define the goals of	The ability of a teenager to self-assess, analyze his actions, deeds and activities, develop new norms; the ability to recognize his own difficulties in assessing his	– Developing the ability of adolescents to master research activities; – the ability and readiness of teenagers to develop new

Subjects of interaction	Communicative competence	Reflective competence	Design competence
– Expansion of the value and semantic space of teenagers by means of project activities, which include: – reflection; – communication; – design	communication; – assess the situation; – take into account the intentions and methods of communication of the partner; – choose adequate communication strategies; – be prepared to meaningfully change your own speech behavior; – the ability to establish and maintain contacts with other people; – to master the norms of communication and behavior. The ability to understand others and generate one's own statements, texts, adequate to the goals and situations of communication	own progress in the direction he has chosen in this program. The ability to reflect – to evaluate one's actions, as well as self assessment of project activities	projects; – gaining experience in presenting one's own achievements within the framework of the program in accordance with the chosen direction, experience in self-analysis of an individual project from the point of view of its usefulness to one's region. Reaching new goals
The School of Creative Practices is responsible for the success of the teenager in mastering communication skills, building up	Creating conditions for acquiring positive communication skills and interaction in search and research activities, necessary for the implementation of team (collective) work. Creating conditions for gaining experience in const-	Creating for teenagers an understanding of their own activities, satisfaction, joy from the results obtained. Reflection of their own activities in an individual reflective diary	In particular, development of projects, participation in competitions, etc. Preparation and presentation of products of project activities

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Subjects of interaction	Communicative competence	Reflective competence	Design competence
	ructive communication methods, including on the basis of the contract principle		

5. Methodological recommendations

This section provides explanations of the educational events of the Sea Launch program (see Table 7), containing goals, objectives and recommendations for their preparation and implementation.

Table 7 – Explanations of the Sea Launch program curriculum

Events	Objectives, tasks, recommendations
Additional education (basic part)	
The "Tricolor of Russia is our pride" holiday ("My Russia" course). The course lasts 1 hour	Objective: to promote love and pride for one's country. The Day of the State Flag of the Russian Federation is one of the officially established holidays of Russia; it was established in 1994 by the decree of the President of the Russian Federation and is celebrated on August 22. The thematic hour as part of the celebration of the Day of the State Flag should contribute to the formation of an active civic position in children, their assimilation of the values of civil society and a democratic state, raising the level of political and legal culture of young people, and preventing manifestations of legal nihilism. The event is recommended to reflect the following issues: the history of the appearance of the State Flag, state symbols of the Russian Federation, symbols of the regions, performances of the artistic group
"Healthy Generation" course. Main events: "Ocean Cross" / competitions / friendly meetings /	Objective: to meet children's needs for participation in sports activities. The types and schedules of competitions are selected and developed by the Department of Physical Education, Technical and Water Sports
"Sports Time". The course lasts 3 hours	Attention! 1. During friendly meetings, sections, and sports hours, special attention is paid to the child's admission by the doctor. 2. Before each lesson, it is necessary to check the safety of sports equipment. 3. Safety and fire safety briefings before each lesson are strictly mandatory. 4. Special instructions on the rules of conduct are given to fans by both the counselor and the physical education instructor

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Events	Objectives, tasks, recommendations
Opening ceremony of the program. Exhibition-advisor "Physics of Space"	Objective: grand opening of the program and presentation of the creative and educational potential of the program for students at the start of implementation. Part I – official An original and creative introduction from the instructors and welcoming speeches from the administration of the squad and the Center is expected. The use of original techniques, forms and traditions during the ceremony is implied. Approximate plan: – general performance of the anthem of the Russian Federation and raising of the flags of Russia, Primorsky Krai, and Andreevsky flag; – greetings from the guests of honor; – information about the course program; – traditional rituals for the Sea Launch shift (introduction of the shift symbol, the first mate of the squad, transfer of authority to him from the first mate of the commander, launch of the vessel construction mechanism); – congratulatory number from the elders; – greetings from children, multiple participants in this program; – ribbon cutting. Part II – creative An advisory exhibition is an exhibition that advises (from the English adviser – advisor, consultant). Its task is to truly advise: not to look at the exhibits, but to take them in your hands and use them as intended. All courses that are presented within the shift program should be presented at the exhibition in a concise form. Students will receive information about all types of activities during the shift, about unusual events in which they will have the opportunity to participate. At such exhibitions, along with informational material, there must be practical activities
Sea Launch Award Ceremony	Objective: to reward winners and active participants of the program. The creative team needs to prepare and sort all the awards by nomination. Show a video clip about the results of the program. Cheerful energetic music should be played at the seating area, and a photo album of the shift can be shown on the screen
Victory and rituals lesson" Competition-review of the formation	Objective: to develop in children a lasting interest in basic military training. This educational event should be preceded by a lot of preparatory work. The crew chiefs and cadets together

Events	Objectives, tasks, recommendations
and song "Songs in soldiers' greatcoats" dedicated to the 80th anniversary of the Victory in the Great Patriotic War	with the students choose a name, a motto, prepare a uniform for their team, choose and learn a song from the times of the Great Patriotic War. The required number of training sessions are held to ensure the coherence of all competitive commands. A well-prepared team evokes a sense of pride in the audience, makes them feel a sense of deep gratitude to those who defended and who are defending our Motherland
The "School of Creative Practices" course (and the final event – an exhibition of children's works of the School of Creative Practices). The course lasts 12 hours	Objective: to create the necessary conditions for personal development, health promotion, professional self-determination and creative work of students. Classes in the Center's additional education system require an individual creative approach from both the teacher and the students. Each student consciously chooses their own individual route for participating in this course and understands the goal they are moving toward. First of all, we must not forget that any lesson within the shift program pursues the general goal of early career guidance of children to engage in maritime affairs, which is voiced in the program requirements. It is important for the teacher of additional education to remember that the goal of all lessons is to raise and maintain students' interest in this particular area, to immerse the child in a holistic learning environment. Therefore, the content of classical lessons should be more unusual, i. e. the means and forms should give the lesson the necessary acceleration for personal development. Classes in a new (different from the usual crew) children's association of the School of Creative Practices are a transition for a child to a different psychological state, a different style of communication, new emotions, and seeing oneself in a new quality. All this gives the opportunity to develop their creative abilities, evaluate the role of knowledge and see its application in practice, feel the relationship between different arts and activities. This is independence and a completely different attitude to work
Additional education (specialized part)	
"Vessel Management" course (final event – sailing regatta "Summer in a Nautical Style")	Objective: to create conditions for the self-realization of the child's personality in the process of introducing him to the activities of a navigator, to form initial competencies in the field of maritime and river affairs. At present, the Russian government pays great attention

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Events	Objectives, tasks, recommendations
The course lasts 12 hours	to the national maritime policy. According to the target settings of the Russian Federation Marine Doctrine and the "Strategy for the Development of Russian Maritime Activities until 2030", by 2030 it is expected that maritime activities will be highly efficient, the state will develop sustainably, national interests and security of the Russian Federation in the World Ocean will be protected and ensured, and Russia's international authority will be strengthened. However, achieving these results is impossible without the education and training of specialists in all areas of national maritime policy. The attractiveness of this course for students is because it allows them to see, study and try to apply the acquired knowledge and skills in the field of small vessel management on a specialized simulator, as well as to feel like a young captain. The course content is appropriate for the age of students aged 13–17 and takes into account their natural interest in promising activities, their need to choose a future profession and life path, as well as the possibility of interactive learning using a modern simulator
"Shipyard" course (the final event is the naval parade "Christening of the Ship"). The course lasts 17 hours	Objective: to develop the student's motivation for creative self-expression through ship modeling. Ship modeling is one of the types of technical creativity. Ship modeling is the design and construction of models and mock-ups of ships and vessels. Organizing training for children in ship modeling is one of the forms of spreading knowledge on the basics of maritime affairs and cultivating their interest in maritime specialties. Participation in this course helps to broaden the polytechnic horizons, develop attentiveness in children, develop fine motor skills of hands and eye, since, when creating a model of a ship, students work with many parts. Training according to the program helps to develop independence, creative and design thinking, and the ability to work in a team in children. The course is designed for students of 7–11 grades, taking into account the age and psychological characteristics of this age, which is considered adolescence
"Cabin boy" course (the final event is the tournament "Sea Battle"). The course lasts 19 hours	Objective: to introduce students to the sea, the diversity of maritime professions and the basics of human life at sea; to create conditions for personal self-realization in the process of introduction to marine sports and marine training.

Events	Objectives, tasks, recommendations
	The course is aimed at introducing children who have come to RCC Ocean from landlocked regions to the sea, as well as an overview of the features of studying the sea. It opens up new horizons for children to learn and develop. Participation in classes gives participants a general overview of maritime professions and basic knowledge of maritime affairs, providing an opportunity to consolidate the acquired knowledge and skills in practice. A mandatory element of the course is sea practice on YAL-6 boats and "Optimist" class center-board boats, where many children find themselves on board a watercraft for the first time in their lives and go out to sea on it. The outcome of this program will be the tournament "Sea Battle", which will clearly show how the children absorbed the knowledge they received. The winners of the "Sea Battle" will receive awards and write their names in the history of the squad. For a more productive result, children will be given time for independent preparation, so that the cadets can be distributed among the sites and get ready to help the cabin boys
"Sea Launch" Course (the final event is the tournament "Rocket Launch", "Protection of Laboratory Projects"). The course lasts 25 hours	Objective: to familiarize schoolchildren with the possibilities and results of space activities used in science and everyday life. The program is designed to initiate scientific research project activities of schoolchildren in various areas of space education. Activities within the program are considered as a tool for generating children's interest in professions in the space sphere, project activities in the field of cosmonautics, identifying and supporting gifted children for further advancement in the engineering and scientific and technical industries. All classes are conducted by specialists from Amur State University, representatives of the Roscosmos State Corporation, scientists and representatives of organizations cooperating with the Roscosmos State Corporation in the field of career guidance projects
"I am a sailor" discussion club	One of the tasks of educational work in the camp is to educate an ethical person who has a goal, knows how to solve life's problems, is oriented in the social space, and has a creative personality. A discussion club is an opportunity for a child to talk about a topic or problem that concerns him (in this case,

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Events	Objectives, tasks, recommendations
	the demand for maritime specialists), to express his opinion, and to be heard. This is very important and necessary for a teenager. Discussion is a rather complex form of work. The personality of the moderator, experts and organizers of the discussion is of great importance here. Even before organizing the discussion, students need to be told about the rules of the discussion or develop their own rules for conducting the discussion. Work in a creative group must be organized for each child, namely, everyone must be divided into several small groups: 1. The 1st group decorates the room where the discussion will take place. 2. The 2nd group conducts a questionnaire, sociological surveys on a given topic, identifies the most interesting questions, invites guests to a meeting. 3. The 3rd group determines the main topics of discussion questions, prepares special issues dedicated to the issues under discussion, and organizes students' presentations on individual issues. The topic of discussion should be communicated to children in advance
Evening meeting with interesting people – an astronaut	Objective: to create conditions for expanding and deepening children understanding of various professions. One of the interesting traditional forms of work with the participants of the shift in the Russian Children's Center "Ocean", the effectiveness of such meetings is difficult to dispute. Children learn in advance which of the guests is invited, and most importantly, what interesting things they will learn this time. Children should not just be listeners; their task is to learn more about the professional activities of the guest. To do this, it is necessary to conduct thematic conversations with children about the guest in advance. A lot of necessary and useful information can be obtained from encyclopedic sources. Everyone knows that the more you learn, the more interest appears in the subject of the conversation, you want to learn even more, to penetrate the topic of the conversation deeper. After all, only based on existing knowledge do children develop interest, and this gives rise to a series of questions that children are happy to ask the guest of the event. Today our guest is an astronaut of the Federal State Budgetary Institution "Research and Testing Center for Astronaut Training named after Yu. A. Gagarin"

Events	Objectives, tasks, recommendations
Sailing regatta "Summer in a nautical style..."	Objective: to popularize sailing and satisfy the teenager's own ambitions. A sailing regatta is a sailing competition consisting of a series of races for vessels of different classes. For this regatta, it is necessary to prepare the racing distance, the crew, the fleet and the race format. The regatta is not a simple race at the end of the shift that will determine the winner, but the final event of the course "Small Vessel Management". Here, the skills of managing a watercraft (an Optimist class centerboard boat), maneuvering the vessel, trying to use the wind direction to your advantage, solving practical marine problems and finding a way out of situations will be determined. The most important thing is to teach the student to use the knowledge that he received during the course
Sea Battle Tournament	Objective: to consolidate the experience gained by the participants of the "Seamanship" course in practice in the format of competitions, to create conditions for self-realization of the individual in the process of introduction to marine sports and marine training. This event will be held in the format of free visits to the test points. Each participant will be given a checklist on which the person accepting the test will have to write the result. Upon completion of all disciplines, such as rigging, semaphore alphabet, Morse code, assembly and disassembly of the AK-74M, the participants will hand in the sheet to the headquarters. Based on the results of the battle, winners will be selected, whose records will be placed on specially designated stands
Master class on organizing abandonment of a disabled vessel	Objective: familiarization with the set of measures taken by the crew or emergency response teams to combat water, fires, damage to the hull and systems; professional orientation, popularization of the seafarer's profession and social adaptation of the schoolchild in modern society. During this lesson, the children will get acquainted with the set of measures taken by the crew to combat water, fires, damage to the hull and systems. The students will learn the conditions and principles of survival at sea in extreme situations, the actions of the crew when abandoning the vessel, the rules of conduct on the water,

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Events	Objectives, tasks, recommendations
	the actions of the crew on the rescue vehicle. The children will be able to learn about the vessel's rescue equipment and get acquainted with them in practice, as well as independently put on a life jacket and a hydration suit
Diving master class from the diving center DivePrim (without diving)	Objective: to develop physical qualities in children through play activities on the water. Participants of the program will be introduced to the main stages of the first dive and will be helped to understand the very first and most important questions. For example, such as: is it necessary to be able to swim when diving with scuba gear and at what level; learn about the necessary equipment; about the basic principles of safety and behavior under water; master the basic skills of breathing and moving under water; instructors will tell about the specifics of communication under water. In addition, the guys will learn that in addition to amateur diving, there is also sports diving, with competitions that are held all over the world
Naval parade "Christening of the ship"	Objective: to educate a socially active creative individual. During the "Shipyard" course, the students took an active part in the construction of a centerboard boat of the "Optimist" class, while learning the rules of control and navigation at sea on these watercraft using existing models. At this event, it is necessary to carry out a ceremonial launch of the newly created vessel with observance of all rituals and customs, organize a naming ceremony, and after that, all the floating craft solemnly sail out into the bay, lining up in various figures
Thematic hour "Time of the First"	Objective: to expand the students' knowledge horizons about the development of cosmonautics and the first flights into space. One of the significant events of our country and the whole world is the first manned flight into space, accomplished by the Soviet cosmonaut Yuri Alekseevich Gagarin. Who was trained for the first flight into space? What were the features of this training? Why was Yuri Gagarin the first to fly into space? How have the requirements for modern astronauts changed? What is the special feature of profession of an astronaut? Coverage of these and other issues related to the history of cosmonautics should be considered during the thematic event

Events	Objectives, tasks, recommendations
"Nakhimov movement in Russia" thematic hour	Objective: to cultivate a sense of pride for one's homeland, to introduce the heroic pages of the past. In 2017, the Nakhimovites of Russia will celebrate the 155th anniversary of the birth of P.S. Nakhimov. The history of the naval commander Nakhimov is a vivid chronicle of the selfless struggle of our people to protect and strengthen the borders of Russia. During the squad activity, children will get acquainted with his biography, and it is necessary to focus their interest on particularly vivid pages. After this, the thematic hour should smoothly approach the history of the creation of the Nakhimov naval schools and why they bear the name of this great commander
Evening meeting with interesting people and participants of the expedition to Pallada	Objective: to create conditions for expanding and deepening children's understanding of the profession of a sailor. One of the interesting traditional forms of work with the participants of the shift in the Russian Children's Center "Ocean". The effectiveness of such meetings is hard to dispute. Children will find out in advance which guests are invited, and most importantly, what interesting things they will learn this time. Children should not just be listeners, their task is to learn more about the professional activities of the guest. To do this, you must first conduct thematic conversations with children about this guest. You can get a lot of necessary and useful information from encyclopedic sources. Everyone knows that the more you learn, the more interest there is in the subject of the conversation, you want to learn even more, to delve deeper into the topic of the conversation. After all, only on the basis on existing knowledge do children develop interest, and this gives rise to a series of questions that children are happy to ask the guest of the event. Today our guest is Denis Viktorovich Burov, the Rector of Moscow State University named after Admiral G. I. Nevelskoy, candidate of physical and mathematical sciences, associate professor, and long-distance captain Sergei Alekseevich Vorobyov, holder of the Order "For Merit to the Fatherland" 2nd degree, captain of the sailing training ship "Nadezhda"
Foresight session "Maritime professions of the future"	Objective: to obtain a reliable "map of the future" describing the main possible events that will influence the industry in the described horizon.

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Events	Objectives, tasks, recommendations
	The task of foresight is not to predict the future, but to agree, through the joint efforts and taking into account all the factors influencing the situation, on what it will be like. Foresight is a technology that will allow children to agree on the image of the future and their desired future. During the joint work, the participants will try to build their path in the maritime industry of the Russian Federation on the time map (working with images and schemes). Unlike traditional forecasting, the foresight technology is proactive in relation to future events. This means that the guys will not just assess the probabilities and risks of the occurrence of certain conditions, but will design their activities in such a way as to strengthen positive trends and increase the probability of achieving the desired events, extinguishing negative, undesirable trends. The foresight structure itself includes the designation of projects and events leading to the chosen goal. At the same time, unlike traditional forecasting and planning methods, the result of a foresight session is a map of the future, i. e. a visually rich space that allows you to see various ways and means of achieving the desired result
Thematic evening "Flying "P" ("Living Legends")	Objective: to become familiar with the history of world ship-building, the formation and development of the sailing fleet. At this event we will talk about multi-masted sailing ships that have gained worldwide popularity and have received the unofficial name of "Flying "P". This should be an evening-story about sailing ships built in the late 19th century to order. During the story, the children should learn that among the numerous pleiad of sailing ships of that time, these four-masted ships were especially valued and stood out, their names began with the letter "P". English sailors, paying tribute to these ships for the speed and courage with which they rounded the inhospitable Cape Horn, called them the "Flying P's". Today, there is only one sailing ship left in the world from this series. This bark was originally called "Padua", and today it is the well-known bark "Kruzenshtern", whose homeport is Kaliningrad. Graduates of maritime schools of our country undergo practical training on it. It is precisely about this and much more that needs to be told to children in an interesting way. You can invite the captains of the local frigates "Pallada" or "Nadezhda"

Events	Objectives, tasks, recommendations
"Maritime professions of the future" foresight session	Objective: to obtain a reliable "map of the future" describing the main possible events that will influence the industry in the described horizon. The goal of foresight is not to predict the future, but to agree, through joint efforts and taking into account all the factors influencing the situation, on what it will be like. Foresight is a technology that will allow children to agree on the image of the future and their desired future. During the joint work, the participants will try to build their path in the maritime industry of the Russian Federation on the time map (working with images and schemes). Unlike traditional forecasting, the foresight technology is proactive in relation to future events. This means that the guys will not just assess the probabilities and risks of the occurrence of certain conditions, but will design their activities in such a way as to strengthen positive trends and increase the probability of achieving the desired events, extinguishing negative and undesirable trends. The foresight structure itself includes the designation of projects and events leading to the chosen goal. At the same time, unlike traditional forecasting and planning methods, the result of a foresight session is a map of the future, i. e. a visually rich space that allows you to see various ways and means of achieving the desired result
Final event "Sea Launch"	Objective: to instill interest in technology and technical creativity. During the shift, the children attended master classes on rocket modeling, during which they designed aircraft. At this event, they are presented and launched. To launch the rocket models, it is necessary to prepare a floating platform in an open bay. There should be no flammable substances on the surface of the floating launch platform. The launch guide is positioned vertically. The rocket is put on with guide rings on the launch pin to the limiter with the help of an emergency rescue team, which approaches the floating platform on the GPS YAL-6 under the supervision of the foreman of the boat. The foreman of the boat connects the wires to the electric fuse and the rocket is ready for launch! The emergency rescue team must move 25-30 meters away from the launcher, and only then is the manned rocket launched

Analysis of events, squad and detachment cases can be carried out according to the methodology presented in the matrix "Scheme of analysis of squad and detachment cases". Project groups responsible for squad cases should record the analysis of each case in a protocol.

During the implementation of the program, the participant develops an image of a new norm of behavior and here he often encounters difficulties, overcoming which he gains self-confidence and self-respect.

Table 8 – Difficulties in children when working with new formations

Obstacles, difficulties	Coping mechanism	New formation, personality trait, experience
Fear of taking initiative, difficulty working with information, low self-organization	The process of support in the execution of an assignment or task: psychological support, praise for the correct completion of the task. Step-by-step immersion in working with information (from simple to complex), setting tasks for self-organization, control and encouragement for a positive result (if negative – analysis of the situation). Training in algorithms for working with information	The ability to purposefully build a self-learning process, the experience of going beyond the given and including externally stimulated intellectual activity in it
Inability to look at the familiar in an unconventional way, fear of standing out from the general group, overcoming negative stereotypes regarding non-adaptive activity	Personal growth training, exercises to overcome mistrust and fear, immersion in non-standard situations, solving TIPS problems, reflection and building a growth point program	The ability to generate productive original ideas and go beyond standard requirements
Inability to hear and listen to others	Games for building effective communication: "Diplomacy", "Rephrases", working with active listening techniques, with constructive technologies for conducting dialogue	Experience of constructive ways and means of interaction with people around you

6. Program monitoring

Monitoring is carried out in different directions under the control of: the department of psychological and pedagogical support (monitoring of children), the scientific and methodological department (diagnostics of adult counselors, teachers, teachers of additional education), the department of preparation and organization of mass events (analysis of events, keeping minutes), the department of educational programs (general control of the content and process of the program). The monitoring scheme is presented in Figure 1.

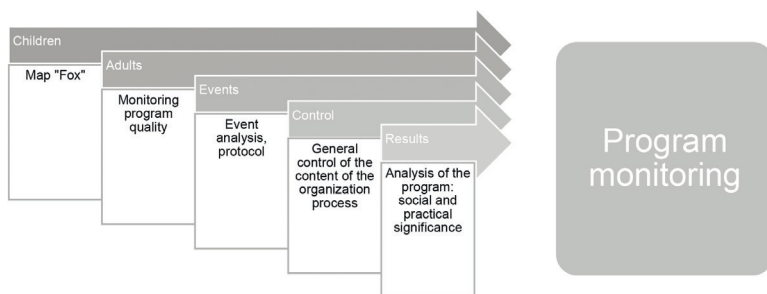


Figure 1 – Program Monitoring

The effectiveness of the program is assessed through:

- daily reflection of participants and teachers on summing up the day;
- questionnaires and surveys of children on the quality of master classes and practical classes;
- maintaining a portfolio of each child's achievements;
- by holding an "Open Microphone" at the final meeting of the team;
- through program analysis at departmental and project office levels.

Feedback is provided via email, comments on the website, letters from children and parents, and expert assessments from independent experts.

As a result of the program, a list of proposals for improving the program is compiled.

Project activity is defined as a specific activity of subjects of the educational process from the emergence of an idea to the creation of a project product, its verification and presentation.

Project evaluation criteria:

- awareness in defining the problem, choosing the project topic, practical focus, and significance of the work being performed;
- the validity of the proposed solutions, approaches and conclusions;
- implementation of accepted design stages, independence, completeness;
- level of creativity, originality of the material embodiment and presentation of the project;
- business and volitional qualities: responsible attitude, goodwill, sociability.

Monitoring uses tools that allow us to assess the quality of the program in terms of content and the effectiveness of the forms used. These include:

- sample questions to identify the level of understanding and development of communicative competence among program participants;
- Methodology for assessing the level of sociability (V. F. Ryakhovsky);
- analysis of the products of the conference (represents a map with criteria for evaluating the research report);
- articulation (involves visualizing the interests of program participants at its different stages);
- and a questionnaire for a program participant (compiled using the "Google Forms" Internet resource, is related to the capabilities of modern information technologies that allow for the survey and self-analysis of activities using more understandable and familiar Internet tools for program participants and an easier way of monitoring for adults).

Monitoring of the quality of the program is determined by adults based on the analysis of observations (see Table 9).

Table 9 – Monitoring of the program for structural divisions
(counselors, preschool teachers, teachers)

Item No.	Indicator to observe	Characteristic by level	Basic period	Final period	Total in the squad, in class
1.	In communicative competence we consider new formations related to the development of communication skills, empathy, understanding the value of the Other for successful self-realization in life				
1.1.	Prefers to work independently, does not show initiative when working in a group	Initial level: independently sets goals that he considers vital for himself, but does not pay attention to the problems that interfere with their achievement. Does not see the connection between the ability to negotiate with people, empathy and goal achievement. Position: observer			
1.2.	Engaging in effective interaction with others	Basic level: independently achieves the intended goals; can foresee mini-problems that need to be solved. Supports the most acceptable solution for him, expressed by other participants. Position: participant			
1.3.	Has experience in constructive communication methods, skills of collective (team) work	Advanced level: independently achieves set goals; sees problems, searches for their solutions; has developed skills of teamwork and business communication in a group. Demonstrates an understanding of the importance of			

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Item No.	Indicator to observe	Characteristic by level	Basic period	Final period	Total in the squad, in class
		each person in a common cause, can coordinate their interests and capabilities with the goals of group activities, can attract resources to implement an idea. Position: organizer			
2.	Project competence represents new formations as meta-subject skills: the ability to create object models of phenomena, processes, events. Development of thinking operations (analysis, synthesis), establishment of cause-and-effect relationships, development of creativity				
2.1.	Focused on creating a project idea and developing an individual educational route	Initial level: can select the means adequate to the task. Acts as an "observer" and performer in project activities. Can analyze reality with significant support from the outside; has difficulty establishing cause-and-effect relationships between phenomena; does not show initiative			
2.2.	Actively participates in organizing activities aimed at creating social, scientific research projects, creative products, builds communication links for working with the product (project)	Basic level: can select adequate means for the task, is capable of developing several options for solving the problem. Independently plans and implements activities in the assigned part of the project. Acts as a "participant" in project activities. Can independently analyze phenomena, independently builds cause – and-effect relationships, makes an			

Item No.	Indicator to observe	Characteristic by level	Basic period	Final period	Total in the squad, in class
		attempt to create a comprehensive project			
2.3.	Oriented towards the creation of a specific personal product (project) and its public presentation, readiness to apply in practice the knowledge and skills acquired in "Ocean"	Advanced level: able to select the appropriate means for the task, sees the situation comprehensively, is able to develop several options for solving a problem, is able to search for non-standard solutions, works with an individual educational route. Acts as an "organizer", manager and initiator of project activities			
3.	New formations related to reflexive competence, which involves the ability to analyze one's experience in order to acquire and develop personal qualities and properties. Working with reflexive competence allows students of the program to:				
3.1.	Measures their capabilities, efforts and results of activities	Initial level: can listen to criticism, record difficulties in their activities, thinking, communication, but cannot analyze their causes. Perception position – personal perception: this is who I am, this is how I see it, this is how I feel and this is what I want			
3.2.	Adequately evaluates and values collective achievements, creative efforts of peers and adults, compares	Basic level: can record difficulties in their own activities and the activities of the team (collective), determine the causes of their own			

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Item No.	Indicator to observe	Characteristic by level	Basic period	Final period	Total in the squad, in class
	his/her assessments with the assessment of the team and the expert assessment of an adult	difficulties and the difficulties of the team (collective). Can criticize and constructively build a dialogue. Perception position – "I" in the position of another: I see the situation through his eyes, and walk in his shoes, I model his reaction			
3.3.	Based on the analysis, it creates norms of activity and communication for the future	Advanced level: is able to relate the results of the team's activities and his/her contribution to the common cause with previously outlined goals and objectives, accepts his/her achievements and the achievements of other team members, sees mistakes, suggests ways to eliminate or neutralize them. Builds an image of a new norm for himself/herself (how should it be?), consciously correlates the past with experience in the "Ocean". Projects ways and means of moving towards the image of his/her "I" in the near future. The position of perception is an objective view from the outside. "Looking into the future": the position of an independent active observer (transformer), perception of what is			

Item No.	Indicator to observe	Characteristic by level	Basic period	Final period	Total in the squad, in class
		happening from the point of view of a wider system and fundamental values			

The program is managed through the analysis of implementation stages (see Table 10).

Table 10 – Stages of program implementation

Stage 1 – adaptive	Stage 2 – projective	Stage 3 – productive
Introduction of program participants into the educational space. Actualization of the creative potential of program participants, identification of individual difficulties and search for ways to overcome them, construction of individual routes	Immersion of participants in the process of mastering the program, gaining subjective experience, through the creation of team and individual projects	Understanding the experience acquired by the program participants and building prospects for further self-development. Comparative analysis of expected and obtained results in accordance with the selected individual educational routes, recording personal achievements and difficulties in the process of mastering the program content

This program allows you to build work with the child's individual route, immersing him in an educational environment where he acquires new formations of a meta-subject and personal nature through communicative, design and reflective activities.

The degree of expression of the assessed competence includes a list of possible levels of mastery of the program material of key competences by the participant – from basic to advanced. A brief description of each level in the substantive aspect is given.

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The main control mechanisms are: planning meetings, project office meetings, monitoring of children's educational achievement indicators, and monitoring of reports on the implemented program.

The basis for deriving specific criteria of effectiveness is the result of education, correlated with the efforts expended and the objectively set parameters of this activity.

When implementing a program, it is necessary to calculate the possible risks and threats of the program (see Table 11).

Table 11 – Potential risks and threats of the program

Risk factors	Prevention
Natural and climatic conditions	Taking into account possible weather "whims" when planning the program; variability of activities in case of bad weather, development of alternative indoor activities; counselor's piggy bank of detachment activities without preliminary preparation
The program participants are of different ages	Adaptation of all mass events of the program according to the age of the participants
Insufficient competence of counselors and their preparation taking into account the program profile	At the preparatory stage – holding an introductory meeting, at the main stage – during school classes "pumping up" the methods and holding consultations on events and matters at the detachment level
Parents' concealment of the fact of deviations in the child's health	Conducting a medical examination before the shift; strict checking of the child's medical documents
Emotional and physical overload of the program participants	Medical control; individual work of the counselor and psychologist with the child; a system of evening talks; reading and singing songs by counselors at night; planning the day taking into account the emotional state of the group; conducting group relaxation in the psychologist's office; alternating creative assignments

Determining the effectiveness of program implementation

This program involves the use of new (modern) teaching methods, such as case studies, coaching, role-playing and business games, model actions, creative groups, pair work, reflection method and others. The social significance of the program is determined by the achievements of participants in communicative, design and reflective activities, as well as applied maritime competencies and is aimed at choosing and self-determination in the professions of the present and future, related to the professions of the space and maritime profile.

7. List of sources

1. The relevance of developing engineering thinking in schoolchildren // State budgetary educational institution of additional professional education POIPKRO: website. – URL: <http://poipkro.pskovedu.ru/blog/doc/engineer.pdf> .
2. Vanyushkina, L. M. Education in the space of culture: monograph / L. M. Vanyushkina, E. N. Korobkova E. N. – St. Petersburg: St. Petersburg APPO, 2012.
3. Dmitrieva, N. V. Formation of a scientific worldview in space education of schoolchildren: specialty 13.00.02 "Theory and methods of teaching and upbringing (by areas and levels of education)": dissertation for the degree of candidate of pedagogical sciences / Dmitrieva Natalia Vladimirovna; Moscow State Pedagogical University. – Moscow, 2011. – 235 p.
4. Zuev, P. V. Development of engineering thinking of students in the learning process / Zuev Petr Vladimirovich, Koshcheeva Elena Sergeevna // Pedagogical education in Russia. – 2016. – No. 6. – P. 44–49.
5. Key competencies – a new paradigm of educational results / I. A. Zimnyaia // Experiment and innovations at school. – 2009. – No. 2. – P. 7–14.
6. Design activities of students as a type of pedagogical technology in teaching physics / V. G. Chupashev // Bulletin of TSPU. – 2006. – No. 6 (57). – P. 145–149. – (Natural and exact sciences).
7. International Conference on Space Education "Road to Space": official website. – URL: <https://roadtospace.cosmos.ru/> (date of access: 14.08.2024). – Access mode: free.
8. Obukhov, A. S. Development of research activities of students / A. S. Obukhov. – M.: Prometheus, Moscow State Pedagogical University, 2006. – 224 p.
9. Adolescence // Library "Gumer": website. – URL: http://www.gumer.info/bibliotek_Buks/Pedagog/hrestomatia/51.php (date accessed: 14.08.2024). – Access mode: free.

10. Popov, A. A. The Future Just Went Its Way. Experiments in Constructing Possibilities / A. A. Popov; preface by A. G. Asmolova. – 2nd ed. – Izhevsk: ERGO, 2014. – 252 p.
11. Popov, A. A. Educational programs and elective courses of the competence-based approach / A. A. Popov. – M.: Lenand, 2016. – 344 p.
12. Technological competencies of students in engineering classes / N. G. Khodyreva, Zh. A. Lysakova, L. G. Ustinova // Professional training in Russia and abroad. – 2019. – No. 3 (35). – P. 48–54.
13. Formation of engineering thinking of schoolchildren today as a guarantee of effective economic development of the country tomorrow / T. N. Shustova, T. B. Paderina // Educational environment today: development strategies: materials of the 4th International scientific and practical conference (Cheboksary, 11.12.2015) / ed.: O. N. Shirokov [et al.]. – Cheboksary: CNS "Interactive Plus", 2015. – No. 3 (4). – P. 350–353.

Appendix

Glossary

An active civic position is a person's conscious participation in the life of society, reflecting his conscious real actions (deeds) in relation to the environment on a personal and social level, which are aimed at the implementation of social values with a reasonable balance between personal and social interests.

BRICS is a group of five rapidly developing countries: Brazil, Russia, India, China, and South Africa. Before South Africa joined, the organization was called BRIC.

Safety is the personal safety of tourists, the safety of their property and not causing damage to the environment when traveling; this is the first thing that tourists should remember when organizing small and large hikes. The basis of safety is practical experience gained in previous hikes.

The All-Russian Federation of School Sports is an all-Russian public physical education and sports organization.

Military field games introduce children to the basics of military sciences, help them to seriously get involved in sports, lay the foundations of a fighter's character, and provide an opportunity to form and demonstrate their specialized knowledge, skills, and abilities. They promote physical development, teach them to think, combine, draw conclusions, and develop their imagination.

Naval science is a system of knowledge about the nature and patterns of armed conflict at sea, its preparation and methods of conducting it by the navy independently and in cooperation with other branches of the armed forces.

Military-oriented (activity-based) direction – formation of a conscientious and responsible attitude to participation in military-patriotic work, aspiration to actively demonstrate abilities and best qualities in the interests of successful implementation of specific events. It includes: motives, goals and objectives, value orientations of military-oriented self-realization of the individual, his/her aspirations and focus on achieving high results of activity, ability to timely perform assigned duties and specific tasks, ability to predict and implement plans for military-oriented growth.

Civic and patriotic education is the formation of readiness in the younger generation to fulfill civic duty, constitutional obligations, the cultivation of a sense of pride in the small homeland, the places where we live, study, grow up, the cultivation of pride in our people, in those people who defended our Fatherland. Educating teenagers in the spirit of the military traditions of the older generation, respect for the exploits of heroes forms in teenagers a sense of love for the Motherland, native land, pride in their Fatherland, increases interest in military-applied sports, the development of physical skills and strong-willed qualities, readiness to defend the Motherland.

Dialogue of cultures – search for common ground in different cultures, a single semantic field of interaction and communication; acceptance and recognition of the culture of another; participants in the interaction act as values for each other; a teenager's knowledge of himself through knowledge of the Other in a dialogue of cultures.

Road traffic accident is an event that occurs during the movement of a vehicle on the road and with its participation, in which people are killed or injured, vehicles, structures, cargo are damaged, or other material damage is caused.

Individualization is a process of personal development of a teenager, providing him with opportunities to form his own goals and objectives, to build an individual educational program (IEP) and an individual educational route (IER) based on personal meanings, an order for his education, a vision of his life prospects, and the construction of his own image through managing his life (T. M. Kovaleva).

An individual educational route (IER) is a personal path for realizing the personal potential of a child (pupil) in education and training.

Individual progress of the shift participants is the development of communicative, reflective and design competencies; the emergence of a goal and formalized interests for the immediate period of life; the emergence of new resources in the teenager and, thanks to their use, new achievements in any area (B. Khasan).

International education – the formation of a sense of unity, friendship, equality and brotherhood that unite the peoples of Russia; a culture of interethnic communication; intolerance to manifestations of national narrow-mindedness and chauvinism.

Competencies are some internal, potential, hidden psychological new formations: knowledge, ideas, programs (algorithms) of actions, systems of values and relationships, which are then revealed in human competencies; let us first designate and outline the range of these basic competencies, keeping in mind their further manifestations as competencies (I. A. Zimnyaia).

Communicative competence is the ability to find like-minded people and attract them to your cause; the ability to interest neutral people; the ability to convince those who have resources that are important to you to allocate them for your project.

Culture is a way of life that accumulates in values and norms the idea of significant goals and effective ways of achieving them, which are recorded and expressed in specific sign systems, and the assimilation of these ideas by the individual contributes to its formation and development.

Personal meaning is the perceived significance of certain objects or phenomena of reality for a person. It can be changed by rethinking the place and role of objects or phenomena in a person's life, by restructuring or expanding his motives and value orientations.

Marine practice – "all issues related to ship management, maintenance of its hull, and operation of deck equipment"⁴.

Multiculture is the coexistence and interaction within one society of diverse, equal and equivalent cultures (including lifestyle, forms of behavior, communication style, value orientations of different socio-cultural groups), implying a positive attitude of its members towards this diversity.

Multiculturalism is the universalization of national cultures, the equal coexistence of the national and the world, rather than the absorption of one by the other. The main focus is on what is common to members of a particular group, rather than their individual characteristics.

An educational event is a situation that is experienced and recognized by a person as significant in his own education, is a completed act of activity from motive to result, a story about this act to oneself and to others. There is no event without an act.

⁴ Zamotkin, A. P. Sea practice for a sailor / A. P. Zamotkin. – M.: Transport, 1993. – 256 p.

Responsibility is the awareness of the ability to cause changes in oneself and in the world and the conscious management of this ability. The active component of responsibility is choice (D. A. Leontiev).

Route-qualification committee – a committee that reviews application documents of tourist groups preparing for categorized hikes, approves hikes. Checks the development of the group route and the schedule of movement for the main and backup options, the compliance of the experience of the group leader and participants with the declared hike. Carries out operational control of the groups' passage of routes. Checks group reports on completed hikes and gives a conclusion on the compliance of the completed route with the specified difficulty category. Assigns tourist categories, issues badges.

Marine all-around is a type of competition in the navy, which includes 1000-meter cross-country running, 200-meter swimming, air pistol shooting, and 1000-meter rowing.

New formations are the emergence of new forms or elements of something. It is in the process of development, not growth, when qualitatively new psychological formations arise, and they constitute the essence of each age stage.

Patriotism is the embodiment of love for one's homeland, involvement with its history, nature, achievements, problems, attractive and inseparable due to their uniqueness and irreplaceability, constituting the spiritual and moral basis of the individual, forming its civic position and the need for worthy, selfless, even self-sacrifice, service to the Fatherland. Patriotism is a kind of foundation of social and state systems, the spiritual and moral basis of their viability and effective functioning.

Pedagogical support is the activity of professionals – representatives of an educational institution, aimed at providing preventive and prompt assistance to children in solving their individual problems related to: physical and mental health; successful progress in education; effective business and interpersonal communication; life self-determination – existential, moral, civic, professional, family, individual-creative choice.

Personalization is the process of transformation by a teenager of external, social motivations, requirements, restrictions and social experience into elements of the structure of his own personality: needs, aspirations, skills, knowledge, etc. The result of acquiring

universal, socially significant, individually unique properties and qualities allows a teenager to "mark out" himself through creative activity, communication with other people, and actively influence their perception.

Multicultural education is a system of teaching and upbringing that takes into account the cultural, ethnic and religious specifics of students, and develops their tolerance and respect for representatives of other linguistic and cultural communities.

Aspirations are the teenager's intentions, his striving for a goal corresponding to his abilities. This formation is closely connected with the self-esteem of the individual, formed under the influence of subjective experiences of success or failure in activity (S. Yu. Golovin). Aspirations are considered through the following levels: 1) the teenager's overcoming of difficulties; 2) his choice of the goal of the next action; 3) self-esteem of the individual – the level of "I".

Applied sports – a type of competition in the navy, includes rigging (tying knots), flag semaphore (transmitting and decoding signals with flags), feeding a drop (dropping lightness), disassembling and assembling an AK-47 assault rifle.

A project is an idea presented in a sketch, drawing, model, etc., a result, a realized plan, a product.

Project activities are specific activities of subjects of the educational process from the emergence of an idea to the creation of a project product, its testing and presentation.

Project competence is the ability to imagine the necessary changes and a new quality of life; to select methods by which these images can become reality; to organize one's actions so that the desired images are realized (Popov A. A.).

Psychological new formation – 1) mental and social changes that arise at a given stage of development and determine the child's consciousness, his attitude to the environment, internal and external life, the course of development in a given period; 2) the generalized result of these changes, the entire mental development of the child in the corresponding period, which becomes the initial one for the formation of mental processes and the personality of the child of the next age (Vygotsky L. S.).

Career guidance is a system of scientifically based measures aimed at preparing young people to choose a profession, taking into

account the characteristics of the individual and the socio-economic situation in the labor market, and at assisting young people in professional self-determination and employment.

"Trying oneself" in professional activity or professional trial is a test that models elements of a specific type of activity, has a completed form, and contributes to a conscious, well-founded choice of profession. Professional trials are based on the ideas of Professor S. Fukuyama (Japan), according to whom a professional trial is the most important stage in the field of professional orientation.

Reflection is a correction of the way of activity based on self-analysis of difficulties in activity, thinking, communication, through the generalization of feelings, sensations that arose in the activity, analysis of the movement of one's own thoughts, feelings, knowledge, worldview to develop a new norm.

Self-awareness of an individual can be viewed as the achievement at each age of a certain degree of self-knowledge, the presence of a relatively holistic "I-concept" and a certain level of self-respect and self-acceptance.

Self-determination of an individual is the formation of a certain position of an individual in various spheres of current life activity and the development of plans for various periods of future life.

Self-government – organizing the internal life of a hiking group by one's own efforts, according to one's own rules. Tourists independently organize the group's daily life, the competent and accident-free conduct of the hike – each member of the group works according to his/her position, managing one or another area of the group's life (cultural organizer, physical education organizer, orderly, local historian, etc.)

Socialization is the process of assimilation by a human individual of a certain system of knowledge, norms and values that allow him to function as a full member of society.

Socio-psychological socialization is a two-way process of socialization, which involves the assimilation of social experience by an individual through entry into the social environment, the system of social connections, the active reproduction of these connections not only at various levels of society's life, but also at the subjective level, transforming them into one's own values, orientations, and attitudes thanks to one's own activity.

A sports game is an independent type of sport associated with the game confrontation of teams or individual athletes, subject to certain rules.

Sports tourism is a type of sport that aims to improve a person's athletic performance in overcoming natural obstacles and in using various tactics and techniques to overcome obstacles.

Tolerance (from the Latin *tolerantia* – patience, forbearance, acceptance) is a sociological term denoting tolerance for another worldview, way of life, behavior, and customs. Tolerance is not the same as indifference. It also does not mean accepting another worldview or way of life, it consists of granting others the right to live in accordance with their own worldview.

Creative initiative is an initiative, a beginning, a person's adoption of an independent decision, a form of manifestation of his social activity, a breakthrough in the field of novelty, a new presentation of an idea, a tool. The result (product) of the manifestation of creative initiative is the creation of qualitatively new products of activity (texts, judgments) or methods of action that are absent in previous experience.

Tourism is a special type of activity in the context of travel, in free time from work to satisfy human needs for physical and moral education, knowledge of the environment, communication, recreation using tourism tools to achieve tourism goals: health, sports, cultural and educational, local history and research, professional and business, etc.

Sports tourism – a sport included in the unified all-Russian sports classification. Includes competitions in sports hiking and competitions in tourist all-round events.

Tutor support – providing assistance to a child implementing an individual educational program, the tutor's timely navigation of possible paths for developing the child's interests, and, if necessary, support.

Cabin boy – a teenager on a ship learning seamanship. In some navies, a junior sailor.

References

1. Askochenskaya, L. I. Social and psychological features of personal development of adolescents and high school students in joint activities of search groups: specialty 19.00.05 "Social Psychology": thesis for the degree of candidate of pedagogical sciences / L. I. Askochenskaya; Kursk State University. – Course, 2010. – 203 p.
2. Bataeva, M. D. Organization of mass events in a children's health camp: methodological recommendations / M. D. Bataeva, N. Yu. Galoy, G. S. Golyshev [et al.]; under the general editorship of E. A. Levanova, T. N. Sakharova. – Moscow: Moscow State Pedagogical University, 2017. – 212 p.
3. Velikanova, E. V. Amateur artistic creativity as a basis for the revival of national cultural traditions: specialty 13.00.05 "Theory, methodology and organization of socio-cultural activities": thesis for the degree of candidate of pedagogical sciences / Velikanova E. V.; Tambov State University named after G. V. Derzhavin. – Tambov: TSU named after G. R. Derzhavin, 1999. – 239 p.
4. Workshop: what is it in simple words in training // Seostayer.ru: website. – URL: <https://seostayer.ru/vorkshop-chto-eto-takoe-prostymi-slovam> (date of access: 08/14/2024).
5. Ignatovich, V. K. Design of an individual educational route: the problem of subject readiness: monograph / V. K. Ignatovich, S. S. Ignatovich, V. M. Grebennikova, P. B. Bondarev; under scientific ed. V. K. Ignatovich. – M.: Ritm, 2015. – 144 p.
6. Kalinina, N. V. Psychological aspects of development of social competence of schoolchildren: monograph / N. V. Kalinina, M. I. Lukyanova. – Ulyanovsk: UIPKPRO, 2002. – 208 p.
7. Kodzhaspirova, G. M. Pedagogical dictionary: for students of higher and secondary pedagogical educational institutions / G. M. Kodzhaspirova, A. Yu. Kodzhaspirov. – 2nd ed., reprinted. – M.: Academia, 2005. – 173 p.

8. Methodology for assessing students' project competence / N. V. Matyash, Yu. A. Volodina // Psychological research: electronic. scientific journal. – 2011. – No. 3 (17). – URL: <https://psystudy.ru/index.php/num/article/view/847/460> (date of access: 14.08.2024).
9. Ocean. 30 stories from the history of "Ocean". – Vladivostok: Dalpress, 2013. – 125 p.
10. Pedagogical design: a teaching aid for higher educational institutions / I. A. Kolesnikova, M. P. Gorchakova-Sibirskaya; edited by I. A. Kolesnikova. – M.: Publishing center "Academy", 2005. – 288 p.
11. Plekhov, A. M. Dictionary of military terms / A. M. Plekhov; compiled by S. G. Shapkin. – M.: Voenizdat, 1988. – 335 p.
12. Career guidance: goals, functions, directions // Career guidance center: website. – URL: <https://prof-test24.ru/blog/prof/professionalnaya-orientaciya-celi-funkcii-napravleniya/> (date of access: 14.08.2024).
13. Resource base of social and cultural activities // MegaObuchalka: website. – URL: <https://megaobuchalka.ru/12/20206.html> (date of access: 08/14/2024).
14. Rogers, K. A View of Psychotherapy. The Formation of Man / K. Rogers; general. ed. and foreword. E. I. Isenina. – M.: Progress, Univers, 1994. – 479 p.
15. Rozhkov, M. I. Development of self-government in children's groups / M. I. Rozhkov. – M.: Vldos, 2002. – 169 p.
16. Theory and methods of organizing summer recreation for children and adolescents: a tutorial / G. G. Kruglikova, G. R. Linker. – Nizhnevartovsk: NSU, 2011. – 236 p.
17. Tutoring as anthropological practice: between individual educational trajectory and individual educational program / T. M. Kovaleva, T. V. Yakubovskaya, // Chelovek.RU: humanitarian almanac. – Novosibirsk: NSUEM, 2017. – P. 85–94.
18. Student self-government at school // Aktion: website. – URL: <https://www.menobr.ru/article/28673-samoupravlenie-v-klassnom-kollektive-kak-metod-formirovaniya-grajdanskoj-yopozitsii> (date of access: 14.08.2024).

Normative legal sources:

1. Decree of the President of the Russian Federation No. 309 of 07.05.2024 "On the national development goals of the Russian Federation for the period up to 2030 and for the future up to 2036" // President of Russia: official website. – URL: <http://kremlin.ru/events/president/news/73986> (date accessed: 10.03.2025). – Access mode: free.
2. The Maritime Doctrine of the Russian Federation, approved by the Decree of the President of the Russian Federation of July 31, 2022 No. 512 // President of Russia: official website. – URL: <http://static.kremlin.ru/media/events/files/ru/xBBH7DL0RicfdtdWPol32UekiLMTAycW.pdf> (date of access: February 28, 2025). – Access mode: free.
3. Russian Federation. Laws. On Education in the Russian Federation: Federal Law No. 273-FZ // Electronic Fund of Legal and Regulatory Documents: website. – URL: <https://docs.cntd.ru/document/902389617> (date accessed: 14.08.2024). – Access mode: free.
4. Strategy for the Development of Maritime Activities of the Russian Federation until 2030: approved by the Order of the Government of the Russian Federation No. 1930-r dated 08.12.2010 // Electronic Fund of Legal and Regulatory Documents: website. – URL: <https://docs.cntd.ru/document/561091982> (date of access: 14.08.2024). – Access mode: free.

Profile course "Sea Launch"

Eremina V. V., Pavelchuk A. V.

1. Target section

1.1. Explanatory note

Relevance. The program is designed to initiate scientific research project activities of schoolchildren in various areas of space education. Activities within the program are considered as a tool for: forming children's interest in professions in the space sphere, project activities in the field of astronautics; identifying and supporting gifted children for further advancement in the engineering and scientific and technical industries.

The main focus of the course is technical.

Level of mastery: basic.

Novelty. The novelty of the program consists in conducting all types of theoretical and practical classes against the background of a single information space, maintaining the relationship between the main areas of research and project activities regardless of the specific specialization chosen by the students.

When implementing the program, new (modern) teaching methods are used, such as case studies, coaching, role-playing and business games, model actions, creative groups, pair work, reflection method and others.

When working with children, the following teaching technologies are used:

- developmental learning: development of the individual and his/her abilities. Orientation of the educational process towards the potential capabilities of a person and their realization through the involvement of students in various types of activities;
- modular training: ensuring flexibility, adapting it to the individual needs of the individual, the level of his basic training. Independent work of students with an individual

educational program through a problem-based approach, individual pace of learning;

- problem-based learning: development of cognitive activity and creative independence of students. Consistent and purposeful presentation of cognitive tasks to students, solving which the students actively acquire knowledge through search methods; setting cognitive tasks;
- active (contextual) learning: organizing learners' activity. Modeling the subject and social content of educational (specialized, professional) activities through active learning methods.

The results of the program implementation are summarized in the form of a defense of the design work.

Pedagogical feasibility. The pedagogical feasibility of the program is explained by the main principles on which it is based: the principle of a moral attitude towards each other, towards the surrounding world; the principle of a creative attitude towards work; the principle of the unity of training, education and development; the principle of taking into account the age characteristics of children; the principle of accessibility of the selected forms of work; the principle of safety during all activities.

Distinctive features of the program. A unique program that has no analogues in the Russian Federation. The program is implemented by holding all types of theoretical and practical classes against the background of a single information space, maintaining the relationship between the main areas of research and project activities regardless of the specific specialization chosen by the students. A special feature is the opportunity to learn the skills of working in a group and creating collective projects, as well as the opportunity to see the results of their work. An important aspect of the program is the consideration of the features of psychological support.

Program volume. Total number of course hours – 192 hours.

Group capacity: up to 15 people.

Age of students: from 13 to 17 years.

Form and mode of classes. Forms of organization of students' activities in classes: individual-group, frontal. Type of classes: combined, theoretical, practical. One shift (21 days), number of classes 12 (24 hours). Duration of class 40 minutes (paired classes).

1.2. The purpose and objectives of the program

Objective: to form an interconnected set of basic knowledge, skills and abilities necessary for the practical implementation of independent project activities in the field of space technologies.

Tasks:

- mastering the fundamental scientific principles of the theory of gravity and jet propulsion, as well as the applied use of satellites and landing vehicles;
- to develop a set of skills necessary for independent solution of applied problems related to project activities in the field of the chosen specialization (rocket science, robotics, etc.), as well as to develop practical skills in carrying out research and development work within the framework of the direct implementation of a specific technical project;
- in the education of a creatively active and independent individual with a moral position and moral self-knowledge, increasing the self-esteem of students, forming the cohesion of work groups and the team as a whole, as well as organizing socially valuable relationships and experiences.

1.3. Planned results of the program

Expected results

Design and implementation of innovative educational projects within the framework of space topics with subsequent implementation in educational institutions and institutions of additional education of the Russian Federation.

Methods for determining performance

The following are used to track performance: pedagogical observation; analysis of survey results, students' performance of diagnostic tasks, participation in events and competitions, project defense, students' activity in classes. Monitoring: tests, personal growth diagnostics, assessment system, students' self-assessment.

Certification forms: current, final.

Forms of assessment during the program implementation: test assignments (oral survey, testing); creation of problematic, difficult

assignments (solving problematic tasks); questionnaires; project defense.

2. Content section

2.1. Program content

The program content includes the following modules:

- "Physics of Space": Kinematics of a material point. Kinematics of translational motion. Dynamics. Momentum of a body. Law of conservation of momentum. Jet propulsion. Equilibrium of a system. Law of universal gravitation. Gravity. Weight. Weightlessness in space. Kepler's laws. Quiz on TIPS problems. Olympiad in physics. Analysis of Olympiad problems;
- "Rocketry. Launch from Water": introductory lesson. Safety precautions when working with cutting and piercing tools. Model rescue system. Requirements for model rocket engines. Practical classes in making rocket models and rescue systems (parachute, streamer tape). Assembling rocket models. Painting and marking. Competition rules. Simulation of the launch of rocket models. Checking the rescue system. Preparing a model for launching a satellite. Participation of students in rocket launch competitions from a site located at sea. Summing up, final defense;
- "Satellite Construction": safety techniques when working with cutting and piercing tools. Introduction to electronics. General principles of working with Arduino and setting the group's task. Practical classes. Cutting and debugging the constructor on the table. Forming a technical task for the design bureau. Working with the constructor. Sensor interaction interfaces. Programming. Making a rescue system. Assembling the head part together with electronics. Participation of students in competitions. Summing up, final defenses;
- "Space Drone": introductory lesson. Safety precautions. Introduction to unmanned aerial vehicles. Composition and classification of unmanned aerial vehicles. Structure of modern unmanned aircraft systems. Main stages: design of multirotor UAVs. Main stages: design of multirotor UAVs. Engineering graphics. Design of three-dimensional parts. Design and

development of robot chassis, manipulators and grippers. Preparing the drone for flight. Preparing the drone for flight. Minimum drone settings required for the first flight, flight modes. Programming the drone flight task. Project protection. Competitions;

- "Robotics. Remotely operated underwater vehicle (ROV): programming basics. Design of electrical boards. Microcontroller programming. Assembly of a ROV prototype. Assembly of a ROV prototype;
- "3D modeling and prototyping": introductory lesson. Safety precautions. Introduction to the CAD "KOMPAS-3D". Development of a satellite model. Introduction to 3D printing. Printing the developed models. Defense of the final project;
- "Psy-Factor": introductory lesson. Mental processes. Psychological games "Kingdom". Time management. Comfort zone. Types of activity. Profession, specialty. Psychological games "Prospects of the Future". Professional self-determination. Abilities and professional suitability. Planning a professional career. Mass media as a tool of influence. Fundamentals of social design. Final lesson. Project defense;
- "Emergency Rescue Service (ERS): rules of conduct on the water. General physical training. General developmental exercises. Strength training. Types of rowing. Theoretical training. Psychological training. Teaching and improving rowing techniques. Competitive training. Participation in competitive swims.

3. Organizational section

3.1. Curriculum

Item No.	Module name / topics	Number of hours			Forms of certification/ control
		total	theory	practice	
Invariant part					
Section 1. Space physics					
1.	Kinematics of a material point. Kinematics of translational motion	4	3	1	Oral survey

Oceanic practice: the «Oceanic Squadron» squad

Item No.	Module name / topics	Number of hours			Forms of certification/ control
		total	theory	practice	
2.	Dynamics. Impulse of a body. Law of conservation of momentum. Reactive motion. Equilibrium of a system	5	3	2	Oral survey, testing
3.	Equilibrium of the system. Law of universal gravitation. Gravity. Weight. Weightlessness in space	5	3	2	Oral survey, testing
4.	Kepler's Laws	2	1	1	Oral survey
5.	TIPS Problems Quiz	2	0	2	Solving problematic tasks
6.	Olympiad in physics	2	0	2	Solving problematic tasks
7.	Analysis of Olympiad problems	4	1	3	Solving problematic tasks
Section 2. Rocketry. Launch from water					
8.	Introductory lesson. Safety techniques when working with cutting and piercing tools. Model rescue system. Requirements for model rocket engines	2	2	0	Oral survey, testing
9.	Practical classes on making models of rockets and rescue systems (parachute, streamer tape). Assembling models of rockets. Painting and marking	16	1	15	Oral survey, problem solving
10.	Competition rules. Simulation of rocket model launch. Checking the rescue system. Preparing a model for satellite launch	2	1	1	Testing
11.	Participation of students in rocket launch competitions from a site located at sea. Summing up, final defenses	4	0	4	Project protection
Section 3. Satellite construction					
12.	Safety precautions when working with cutting and piercing tools. Introduction to electronics	3	2	1	Oral survey, testing
13.	General principles of Arduino operation and setting the task for the group. Practical exercises	5	3	2	Oral survey

Item No.	Module name / topics	Number of hours			Forms of certification/ control
		total	theory	practice	
14.	Designer assembly and debugging on the table. Formation of technical specifications for the design bureau. Working with the designer. Sensor interaction interfaces. Selection of sensors for mission implementation. Formation of the mission image and formation of the work algorithm. Programming. Manufacturing of the rescue system. Assembly of the head part together with electronics	12	2	10	Oral survey, problem solving
15.	Participation of students in competitions. Summing up, final defenses	4	0	4	Project protection
Section 4. Space drone					
16.	Introductory lesson. Safety precautions. Introduction to unmanned aerial vehicles	0.5	0.5	0	Oral survey, testing
17.	Composition and classification of unmanned aerial vehicles	1	1	0	Testing
18.	The structure of modern unmanned aircraft systems	1	1	0	Oral survey
19.	Main stages: design of multirotor UAVs	3	1	2	Testing
20.	Types of power sources, their characteristics. Maintenance. Safety precautions	1.5	1	0.5	Oral survey
21.	Engineering graphics. Design of three-dimensional parts	7	2	5	Oral survey
22.	Design and development of robot chassis, manipulators and grippers	5	1	4	Oral survey
23.	Preparing the drone for flight	2	0	2	Oral survey
24.	Programming and setting up drones	0.5	0.5	0	Testing
25.	Minimum required drone settings for the first flight, flight modes	0.5	0	0.5	Testing

Oceanic practice: the «Oceanic Squadron» squad

Item No.	Module name / topics	Number of hours			Forms of certification/ control
		total	theory	practice	
26.	Programming a drone flight mission	1	0	1	Testing
27.	Project protection. Competitions	1	0	1	Project protection
Section 5. "Robotics. Remotely operated underwater vehicle" (ROV)					
28.	Basics of programming	2	2	0	Oral survey
29.	Design of electrical circuit boards	2	0	2	oral survey, testing
30.	Programming microcontrollers	6	2	4	Oral survey
31.	Assembly of the prototype ROV	10	0	10	Oral survey
32.	Project Defense	4	0	4	Project protection
Section 6. 3D Modeling and Prototyping					
33.	Introductory lesson. Safety precautions	1	1	0	Oral survey, testing
34.	Introduction to CAD "KOM-PAS-3D"	5	3	2	Oral survey
35.	Introduction to CAD "KOM-PAS-3D"	10	1	9	Oral survey
36.	Getting to know the 3D printer	2	1	1	Oral survey
37.	Printing of developed models	4	0	4	Testing
38.	Defense of the final project	2	0	2	Project protection
Total		144	40	104	-
Variable part					
Section 7. Psy-factor					
39.	Introductory lesson. Mental processes. Psychological games "Kingdom". Time management. Comfort zone	5	2	3	Questionnaire
40.	Activities. Profession, specialty. Psychological games "Prospects of the Future"	4	2	2	Questionnaire
41.	Professional self-determination. Abilities and professional suitability. Planning a professional career	10	5	5	Questionnaire
42.	Mass media as a tool of influence. Fundamentals of social design. Final lesson. Project defense	5	2	3	Project protection

Item No.	Module name / topics	Number of hours			Forms of certification/ control
		total	theory	practice	
Section 8. Emergency Rescue Service (ERS)					
43.	Rules of conduct on the water	2	1	1	Oral survey
44.	General physical training. General development exercises. Strength training	10	2	8	Oral survey
45.	Types of rowing	2	1	1	Testing
46.	Theoretical training. Psychological training. Teaching and improving rowing techniques. Competitive training	8	4	4	Testing, problem solving
47.	Participation in competitive swimming	2	0	2	Competition
Total		48	19	29	-
Total for the program		192	59	133	-

3.2. Organizational and pedagogical conditions for the implementation of the program

Logistics support for the program for the module "Physics of Space":

- a room (classroom) with an area of 40 square meters or more with the possibility of darkening;
- furniture: 15–20 chairs, 10 tables (one for two students), 1 wide demonstration table, 1 cabinet for writing materials and equipment;
- a large chalk (green) classroom board (with magnets), 1.5 square meters in area, or two smaller boards of the same total area, a box of soft (cylindrical) white chalk, 2 chalk rags;
- laptop (for the teacher) based on a Core i3 processor (or higher) with pre-installed Windows 7 or 10, Chrome, Powerpoint, Excel, Word, mouse and Internet access – 1 pc.;
- multimedia projector with connection to a laptop, screen;
- stationery (ballpoint pens, 30 cm rulers), scissors, pencils, tape, a folder of drawing paper, Whatman paper, squared notebooks, stationery cups, a block of self-adhesive paper,

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rulers (50 cm), board markers, a pack of A4 paper, felt-tip pens (12 colours);

- materials for conducting classes (a box of matches, a lighter, wax candles, sheets of white beer cardboard, a ball of twine/string, strong ring magnets, a laser pointer [red, blue, purple], lenses);

Logistics support for the program for the module "Rocketry. Launch from Water":

- premises (classroom) with an area of 40 square meters or more;
- furniture: 15–20 chairs, 10 tables (one for two students with hardboard for desks measuring 50×40 cm), 1 teacher's (demonstration) table, 1 cabinet for materials and equipment;
- chalk (green) blackboard (with magnets), cylindrical white chalk (3 pcs.), 1 chalk cloth;
- laptop (for the teacher) based on a Core i3 processor (or higher) with pre-installed Windows 7 or 10, Chrome, Powerpoint, Excel, Word, mouse and Internet access – 1 pc.;
- multimedia projector with connection to a laptop, screen;
- pontoon for launches with installation;
- stationery (pencils, eraser, sharpener, scissors, 30 cm rulers), masking tape, Flex Tape – 100 mm, stationery knife, Whatman paper, a folder of paper for drawing, silicate stationery glue, markers for the board, a pack of A4 paper, brushes No. 2);
- materials for conducting classes (hardboard for desks measuring 50×40 cm), warning tape for fencing off the launch area for model rockets, helmets, Super Moment Ideal glue (waterproof), S-501 Okong glue, Micron 1500D/3 200 yd threads, 50 mm penoplex (sheet), premium quality Moment Germent universal silicone sealant, sealant gun, parachute fabric, plywood, sandpaper (set with different grain sizes), 1-2 mm rubber (10 m skein), Arton aerosol paint (600 ml, different colors), igniter for RD1-50, RD1-100 (IG4-300), RD1-50-5M engines (with igniter), RD1-100-7M engines (with igniter), foil, 1 mm plastic 1800×1200 (sheet), tube, engine compartment, CMOS camera for FPV flights, full

channel FPV receiver for Android smartphones, file with replaceable blades);

- equipment for classes (battery charger).

Logistics support for the program for the "Satellite Construction" module:

- a room (classroom) with an area of 40–50 square meters;
- furniture: 10–15 chairs, 6 tables (one for two students with hardboard for desks measuring 50×40 cm), 1 teacher's (demonstration) table, 1 cabinet for materials and equipment;
- chalk (green) board (with magnets), cylindrical white chalk (3 pcs.), 1 chalk cloth or flipchart with markers;
- laptop (for the teacher) based on a Core i3 processor (or higher) with pre-installed Windows 7 or 10, Chrome, Powerpoint, Excel, Word, mouse and Internet access – 1 pc.;
- multimedia projector with connection to a laptop, screen;
- 5 laptops (for students) based on a Core i3 processor (or higher) with pre-installed Windows 7 or 10, Chrome, Powerpoint, Excel, Word, mouse and Internet access;
- office supplies (a pack of A4 paper, 30 cm rulers), pencils, a sharpener, scissors, a stationery knife, an eraser);
- materials for conducting classes (a set of soldering tools, safety glasses, a set of needle files, hardboard, a set of screwdrivers, side cutters, pliers, a set of tweezers, tool boxes, electrical tape, solder, flux, sandpaper, Okong C-501 glue, needles, threads, double-sided mounting tape, green on a black base, 30 mm × 5 m, a semi-open sealant gun, white plastic ties 3 × 150 mm (clamps), universal silicone sealant, lighter, Micron 1500D/3,200 yard threads, parachute fabric);
- satellite designer (satellite components);
- equipment for classes (soldering stations, drill, multimeter).
- Logistics support for the program for the module "Robotics. RPA":
 - a room (classroom) with an area of 30–40 square meters;
 - furniture: 8 chairs, 5 tables (one for two students), 1 teacher's (demonstration) table, 1 cabinet for materials and equipment;
 - magnetic marker board with markers;

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- 1 teacher's computer connected to visualization tools and with Internet access;
- multimedia projector with connection to a computer, screen;
- 3 computers (laptops) for students without Internet access;
- 4-socket extension cord – 2 pcs.;
- access to a pool with water 25x10 m;
- inflatable pool with water round 75x35 cm (depth not less than 30 cm);
- office supplies (a pack of A4 paper, an eraser, ballpoint pens, 30 cm rulers), pencils, colored markers, scissors, office tape, double-sided tape, a stationery knife);
- materials for conducting classes (solder, flux, nippers, screwdriver set, needle file set, tweezers, calipers, hacksaw, lighter, hardboard sheets, superglue, casting batteries, microUSB cable, universal waterproof sealant "Moment Germent", paper towels, PVC electrical tape, fishing line, epoxy glue, polystyrene foam);
- drone accessories;
- equipment (soldering stations, drill with attachments, welding machine for plastic pipes).

Logistics support for the program for the module "3D modeling and prototyping":

- premises (classroom) with an area of 40 square meters or more;
- furniture: 10–15 chairs, 5–6 tables (one for two students), 1 teacher's (demonstration) table, 1 cabinet for materials and equipment;
- magnetic marker board with markers;
- 1 teacher's computer connected to visualization tools and with Internet access;
- multimedia projector with connection to a computer, screen;
- 5 computers (laptops) for students without Internet access;
- 3D printers – 5-6 pcs.;
- office supplies (rulers, sharpeners, protractors, compasses, pencils, stationery cups, stationery knives, a pack of A4 paper);

- materials for conducting classes (calipers, tool boxes, a set of multi-purpose needle files, SD cards, hairspray, sandpaper, filament).
- Logistical support of the program for the Psy-Factor module:
- a room (classroom) with an area of 40 square meters or more;
- furniture: 15–20 chairs, 7 tables (one for two students), 1 teacher's (demonstration) table, 1 cabinet for writing materials and equipment;
- chalk (green) board (with magnets), cylindrical white chalk (3 pcs.), 1 chalk cloth or flipchart with markers;
- 1 teacher's computer connected to visualization tools and with Internet access;
- multimedia projector with connection to a computer, screen.

Logistics support for the program for the module "Space drone":

- premises (classroom) with an area of 40 square meters or more;
- furniture: 15–20 chairs, 10 tables (one for two students), 1 teacher's (demonstration) table, 1 cabinet for materials and equipment;
- chalk (green) board (with magnets), cylindrical white chalk (3 pcs.), 1 chalk cloth or flipchart with markers;
- 1 teacher's computer connected to visualization tools and with access to the Internet;
- multimedia projector with connection to a computer, screen;
- 5-6 student laptops with Mission software Planner and access to the Internet;
- 4-socket extension cord – 2 pcs.;
- flight platform 50 x 50 m;
- office supplies (pencils, A4 paper, 30 cm rulers, tape, double-sided tape);
- equipment (soldering stations, IMAX B6AC battery charger, battery chargers, multimeter, engraver with metal cutting attachments and a set of drills);
- materials for conducting classes (solder, flux, lighter, wire, heat shrink, a set of spare blades, batteries, Velcro fasteners, propeller balancer, converters, a set of screwdrivers, T-connector, self-tapping screws, USB-A – microUSB cable,

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cable ties, aluminum tubes, a set of needle files, nippers, pliers, bolts);

- drone constructor (quadcopter frame kit F450 450 mm PIXHAWK 2.4.8 with flight controller M8N GPS 30A Simonk ESC 2212 920KV Flysky I6X + X6B).

Financial and economic justification of expenses for the program. For high-quality training, the above-mentioned equipment, consumables, designers and components included in their composition, premises, launch sites are required.

Program staffing. Organizing group: Victoria Vladimirovna Eremina, Associate Professor of the Department of Information and Control Systems, PhD in Physics and Mathematics, Director of the AmurTechnoCenter (Center of Scientific Collaboration named after M. T. Lutsenko) of the Federal State Budgetary Educational Institution of Higher Education Amur State University; Anna Vladimirovna Pavelchuk, PhD in Physics and Mathematics, Deputy Director of the AmurTechnoCenter (Center of Scientific Collaboration named after M. T. Lutsenko) of the Federal State Budgetary Educational Institution of Higher Education Amur State University.

No. p/p	Module	Full name of the teacher	Name of the organization
1.	Physics of Space	Temnikov V. S. (teacher of the Department of Physics)	Federal State Budgetary Educational Institution of Higher Education "AmSU"
2.	Rocketry. Launch from water	Agapaytov V. A. (teacher of physics and astronomy); Nazarenko N. V. (Senior Lecturer, Department of Information and Control Systems)	Federal State Budgetary Educational Institution of Higher Education "AmSU"
3.	Satellite construction	Mishachenko K. G. (teacher); Plakhonin G. P. (master of science)	Federal State Budgetary Educational Institution of Higher Education "AmSU"
4.	Space drone	Kocheryan A. M. (graduate student); Kim A. V. (Master's student)	Federal State Budgetary Educational Institution of Higher Education "AmSU"

No. p/p	Module	Full name of the teacher	Name of the organization
5.	Robotics. Remotely operated underwater vehicle (ROV)	Demyanenko A. E. (teacher); Malyako D. V. (graduate student)	Federal State Budgetary Educational Institution of Higher Education "AmSU"
6.	3D modeling and prototyping	Petrenko A. V. (additional education teacher, master's student); Matveev V. E. (graduate student)	Federal State Budgetary Educational Institution of Higher Education "AmSU"
7.	PsiFactor	Demidas A. V. (educational psychologist)	Federal State Budgetary Educational Institution of Higher Education "AmSU"
8.	Emergency Rescue Service (ERS)	Krivko P. A. (Head of the Marine Educational and Training Center)	RCC "Ocean"

Methodological and assessment materials. During training, the main methods of organizing and implementing educational and cognitive work are used, such as verbal, visual, practical, inductive and problem-searching. The choice of methods (ways) of training depends on the psychophysiological, age characteristics of children, the topic and form of classes. At the same time, in the process of training, all methods are implemented in the closest interconnection.

The methodology of conducting classes involves the constant creation of situations of success, joy from overcoming difficulties in mastering the studied material and in performing work. This is facilitated by joint discussions of the technology of completing tasks, products, as well as encouragement, creation of positive motivation, actualization of interest.

4. References

4.1. Bibliography for a teacher

1. Abramova, G. S. Age Psychology: a textbook for universities. – M.: Academic Project, 2010. – 623 p.
2. Bayborodova, L. V. Project activities of school-children in mixed-age groups: a manual for teachers of general education organizations /

- L. V. Bayborodova, L. N. Serebrennikov. – M.: Education, 2013. – 175 p. – (We work according to the new standards).
3. Berezhko, E. G. Introduction to space physics / E. G. Berezhko – M.: Fizmatlit, 2014. – 264 p.
 4. Bloom, D. Learning Arduino / D. Bloom. – SPb.: BHV-Petersburg, 2015. – 336 p.
 5. Bordovskaya, N. V. Psychology and pedagogy / N. V. Bordovskaya. – St. Petersburg: Peter, 2017. – 624 p.
 6. Borisova, M. M. Pedagogy of a children's health camp / M. M. Borisova, N. N. Ilyushina, N. P. Pavlova [and others]. – M.: Infra-M, 2018. – 224 p.
 7. Emelyanova, I. N. Theory and methods of education / I. N. Emelyanova. – M.: Academia, 2016. – 176 p.
 8. Organization and control of work with projects / D. Jacques // University education: from effective teaching to effective learning: a collection of abstracts on didactics of higher education. – Minsk: Propylaea, 2001. – P. 121–140.
 9. Mikirtumov, E. B. Aviation modeling / E. B. Mikirtumov. – M.: DOSAAF, 1986. – 210 p.
 10. On the mechanism of realization of personal resources of high school students through project activities / S. A. Weber // Education of schoolchildren. – 2013. – No. 1. – P. 16–23.
 11. Experience of pedagogical support of schoolchildren's project activities / M. V. Ivanova // School and production. – 2013. – No. 4. – P. 3–7.
 12. Fundamentals of General Pedagogy: Theory and Methods of Education: A Textbook / V. S. Selivanov. – M.: Academy, 2016. – 320 p.
 13. Project activities as a mechanism for developing children's giftedness / S. I. Kuznetsova // Education quality management. – 2013. – No. 7. – P. 80–84.
 14. Project activities for the professionalization of high school students / I. S. Kostrikina, E. D. // Psychology of education. – 2013. – No. 5. – P. 130–140.
 15. Project-research technology: development of motivation / V. Vasiliev // Public education. – 2000. – No. 9. – P. 177–180.

16. Randall W. Beard Small Unmanned Aerial Vehicles: Theory and Practice / W. McLane. Timothy – M.: TECHNOSPHERE, 2015. – 312 p.
17. Stolyarenko, L. D. Pedagogy in questions and answers / L. D. Stolyarenko. – M.: Prospect, 2016. – 160 p.
18. Feldshteyn, D. I. Age and educational psychology: selected psychological works. – M.: MPSI, 2012. – 427 p.

4.2. List of literature recommended for students

1. Berezhko, E. G. Introduction to space physics / E. G. Berezhko – M.: Fizmatlit, 2014. – 264 p.
2. Bloom, D. Learning Arduino / D. Bloom. – SPb.: BHV-Petersburg, 2015. – 336 p.
3. Mikirtumov, E. B. Aviation modeling / E. B. Mikirtumov. – M.: DOSAAF, 1986. – 210 s.
4. Randall, W. B. Small Unmanned Aerial Vehicles: Theory and Practice / W. B. Randall, T. W. McLane. – M.: Technosfera, 2015. – 312 p.

Profile course "Shipyard"

Ship modeling is one of the types of technical creativity. Ship modeling is the design and construction of models and mock-ups of ships and vessels.

Well-organized work in a children's association allows children to develop a love of work, educate them in the spirit of collectivism, instills purposefulness, attentiveness, develops independence, creative and design thinking, helps to master various work skills. In the course "Ship Modeling" students consolidate and deepen the knowledge gained in physics lessons, mathematics, drawing, and learn to apply them in practice. Thus, ship modeling helps to expand the polytechnic horizons of students.

Organizing children's training in ship modeling is one of the forms of spreading knowledge on the basics of maritime affairs and cultivating their interest in maritime specialties. This is very important, since our country is a great maritime power.

The civil and naval fleets of the Russian Federation, having thousands of vessels at their disposal, require highly educated, skilled and knowledgeable maritime specialists.

The course is designed in accordance with the Federal State Educational Standard and is implemented within the framework of the shift program.

The course is designed for students in grades 7–11 and is developed taking into account the age and psychological characteristics of this age, which is considered adolescence. During this period, stable forms of behavior and character traits are formed. This is a time of achievements, rapid growth of knowledge, skills, and acquisition of a new social position. Classes in the association give students the opportunity to realize themselves, their capabilities in specific activities, in communication with peers and the teacher.

The main goal of the course: to educate a socially active creative individual.

Course objectives:

- to teach children the techniques and skills of ship modeling;
- to involve students in a variety of creative activities leading to a final product;
- develop design skills;
- in the process of socially useful activities, develop cooperation as the main type of interaction between the teacher and students;
- to promote the development of personality and its professional orientation.

As a result of students completing the "Shipyard" course, the following can be predicted:

- students will assemble an Optimist class centerboard boat;
- students will be able to master the skills and techniques of modeling yachts and ships;
- children's inclinations for design activities will be identified and their abilities developed;
- creative imagination and aesthetic taste of students will be developed;
- children will be able to navigate their choice of profession;
- the foundations for self-education of the individual will be laid.

Curriculum and thematic plan of the course

Objectives and tasks:

1. To cultivate diligence and develop creative thinking in children.
2. To provide students with knowledge of the basics of judicial theory.
3. To study the external architecture of ships and vessels, their main superstructures and combat weapons.
4. To develop sail control skills, to familiarize with the action of the rudder and the effect of the wind on the sail.
5. To instill skills and abilities in using the tool.
6. Learn marine terminology.
7. To develop in children elements of technical thinking, ingenuity, and creative initiative.

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Item No.	Topic	Number of hours			Knowledge and skills acquired. Objective of the lesson
		theory	practice	total	
1.	Introductory lesson: familiarization with the work plan, familiarization with the rules for safe work with the tools. Unified classification of ship and vessel models. Selection of new models for production	1	1	2	To familiarize students with the work plan, safety rules for classes in the association. To form a concept of a unified classification of ship models. To help students with the choice of models for production
2.	The simplest model of a submarine with a rubber engine. A conversation about the military exploits of Russian submariners	1	3	4	To deepen and expand students' knowledge of the structure of a submarine and its main systems. To give an idea of the principle of a submarine's submergence and surfacing. To instill skills and abilities in making a submarine model
3.	Construction of a floating model of the daggerboard boat "Optimist")	0.5	1	1.5	To deepen and expand students' knowledge of the design of a ship's hull and its manufacturing methods. To give an understanding of the main sections and main theoretical dimensions of a ship
3.1.	Manufacturing of the ship's hull and keel block	0.5	1	1.5	To impart skills and abilities in the manufacture of ship hulls and keel blocks
3.2.	Manufacturing of chassis and steering device	0.5	1	1.5	To deepen and expand students' knowledge of ship engines, propellers and steering gear, to introduce their technical

Item No.	Topic	Number of hours			Knowledge and skills acquired. Objective of the lesson
		theory	practice	total	
					characteristics and operating principle. To give concepts about the types of microelectric motors and power sources. To instill skills and abilities in the manufacture and installation of engines, chassis components and steering gear
3.3.	Manufacturing of superstructures	0.5	1	1.5	To deepen and expand students' knowledge of decks, platforms and wheelhouses. To develop skills and abilities in drawing, manufacturing and sheathing a deck of a complex structure, parts of a superstructure and wheelhouse
3.4.	Detailing	0.5	1	1.5	To deepen and expand students' knowledge of combat boat armament and ship devices. To instill skills and abilities in the manufacture of ship devices. To carry out detailed modeling
3.5.	Finishing of the model	0.5	1	1.5	To introduce students to the colors used in painting ships and vessels. To develop skills and abilities in painting the model
4.	Adjustment and testing of the model. For the final lesson	-	1	2	Adjust and test models. Take part in the inter-school competition of technical creativity
Total		5	11	17	-

Profile course "Small Vessel Management"

Lesson No. 1

Topic: "Introduction to the program "Small Vessel Management".

History of the development of shipbuilding and human exploration of waterways. Safety and fire safety briefing. Water safety. Rigging. Mooring".

Contents: history of human creation of watercraft from primitive materials to modern shipbuilding. Geography of the World Ocean and waterways. Safety and fire safety instructions. Seas and rivers. Hydrometeorological conditions. Collective and individual means of rescue on water, rules for their use. Basic properties of a ship. Components of a ship's hull. Water tightness of a ship's hull. Ship survivability. Stability. Items of rigging equipment for small vessels. Marine knots. Basic and universal knots: reef, bowline, sheet, bayonet, noose, boat. Mooring a ship.

Lesson No. 2

Topic: "Basics of navigation. Procedure for using the interactive educational and methodological integrated navigation simulator "ILTSS-2014". Control of a small vessel on rivers, when moving in seaports, when passing through narrow passages and locks. Control testing".

Contents: sea direction. Bearing and distance. Length and speed measures. Navigation charts. Plotting instrument. Use of echo and radar. Navigational signs. IALA system. COLREGs-72. Rules for the passage of vessels. Composition of the training complex. Basic controls. Procedure for interaction with the supervisor when working on the simulator. Types of exercises to be practiced. Basic mistakes when working with the simulator. Practicing skills in handling a small vessel using the training complex. Maneuvering on rivers, when entering a seaport, when passing through narrow passages, when locking. Handling a small vessel in difficult hydrometeorological conditions. Control testing using the Plavsostav software package.

Curriculum

Item No.	Topic	Number of hours			Forms of control
		theory	practice	total	
1.	Introduction to the program "Small Vessel Management". History of the development of ship-building and human exploration of waterways. Safety and fire safety briefing. Safety on the water. Ship structure. Mooring	3	3	6	Questionnaire, test, participant observation
2.	Basics of navigation. The order of using interactive educational and methodological complex navigation simulator "ILTSS-2014". Control of small vessels on rivers. Control of a small vessel when entering a seaport. Control of a small vessel when passing through narrow passages. Control of a small vessel during lock passage. Control of a small vessel in difficult hydrometeorological conditions. Control testing	1	5	6	Final testing on the studied material with the issuance of a certificate of completion of the educational program
Total		-	-	12	-

Planned results. Upon completion of the module, the students will receive an overview of the profession of a navigator; master the algorithm for making a decision by a navigator taking into account the surrounding operational situation and the requirements of the governing documents.

Upon completion of the course content, the students will know:

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- basic principles of maritime affairs: navigation, hydrometeorological support for navigation, rigging and mooring;
- basic safety requirements on waterways, requirements of the International Regulations for Preventing Collisions of Vessels (IRPCS-72) and the International Association of Lighthouse Authorities (IALA);
- the basics of the structure of the hull of a ship and a vessel, their physical properties;
- basic rules for maneuvering when operating a small vessel;
- the procedure for using marine communication equipment on board a vessel;
- rules for rescuing people on the water.
- Students in the program will be able to:
- perform certain types of maneuvering when operating a small vessel;
- apply the requirements of COLREG-72 and IALA when operating a small vessel;
- tie the most commonly used types of sea knots;
- make decisions as a navigator taking into account the surrounding water conditions.

Despite the short duration of the training module, it is designed to help the teenager in forming his life position, and promotes the development of the student's interest in maritime and river professions.

Profile course "Young sailor"

Course objectives:

1. Pedagogic:
 - to cultivate perseverance and hard work;
 - to foster pride in one's country and its achievements in the maritime sphere;
 - develop personal qualities: responsibility, attentiveness, communication skills, team skills;
 - to promote the emergence of professional interest in this type of profession.
2. Developmental:
 - develop a lasting interest in maritime affairs;
 - develop skills to perform primary duties on a ship and small vessel;
 - develop the ability to work according to the proposed instructions;
 - develop motor skills.
3. Educational:
 - familiarizing students with the history of the development of the fleet and maritime affairs;
 - training in teamwork;
 - training in maritime safety measures.

Planned results. Upon completion of the course, students will gain an understanding of maritime professions and service at sea, and algorithms for action in various situations. The course forms a professional interest in this type of educational and work activity, teaches how to work with the material part, showing attentiveness, and taking responsibility for the personal result of the actions performed.

During the course, the students will know:

- history of the development of the Russian fleet;
- basic concepts and terms used in maritime affairs;
- the basics of working with the material part of some ship professions;
- safety measures and requirements when working at sea;

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- the structure and main equipment elements of the YAL-6 boat.

The students will be able to:

- distinguish between the ranks and shoulder straps of military personnel and sailors of the civilian fleet;
- perform drill techniques individually and as part of a unit;
- tie the main types of sea knots used in sea all-round competitions and applied in boat and yachting;
- perform the reception and transmission of simple texts using a flag semaphore;
- perform partial assembly and disassembly of the AK-74 assault rifle.

Working in a study group allows students to better master the material through mutual assistance and analysis of mistakes made in practice.

Upon completion of the course, students demonstrate in their group what they have learned, which is also an element of the final assessment.

Syllabus

Item No.	Topic	Number of hours			Forms control
		theory	practice	total	
1.	Introduction to Maritime Affairs. History of the Development of the Russian Fleet	1	-	1	Concurrent observation of the development of the practical part of the material being studied; at the end of practical classes – conducting practical intermediate control on the material studied
2.	Uniform of military personnel of the Navy and sailors of the civilian fleet	1	-	1	
3.	Ship structure	1	-	1	
4.	Rigging	-	1	1	
5.	Drill	-	2	2	
6.	Communication means	1	-	1	
7.	Navigator's business	1	-	1	
8.	Fire training	1	1	2	
9.	Fundamentals of Naval Affairs	1	-	1	
10.	Boat making	-	14	14	
Total		7	18	25	-

Course Contents

Lesson No. 1

Topic: "Introduction to maritime affairs. History of the development of the Russian fleet".

Objective of the lesson: to introduce students to the main significant events and persons in the history of the Russian fleet.

Contents: the origins of shipping and navigation in Russia. The foundation of the Russian regular fleet. Great victories of the Russian fleet. The most famous naval commanders of Russia. The history of the development of the Pacific Fleet. Combat traditions of Russian sailors.

Lesson No. 2

Topic: "Uniform of the Navy and civilian sailors".

Objective of the lesson: to introduce students to naval clothing, its types and the history of its creation.

Contents: history of naval uniform. Elements of uniform. Shoulder straps and insignia. Types of naval uniform depending on the season.

Lesson No. 3

Topic: "The structure of the ship".

Objective of the lesson: to tell students about how any ship is built and why it stays on the water.

Contents: main properties of a ship. Components of a ship's hull. Water tightness of a ship's hull. Survivability of a ship.

Lesson No. 4

Topic: "Rigging".

Objective of the lesson: to show students the main types of sea knots used by sailors and their application.

Contents: items of ship rigging. Marine knots. Use of knots in maritime affairs. Groups of knots by purpose. The most used and universal knots: reef, bowline, sheet, bayonet, noose, boat knot.

Lesson No. 5

Topic: "Drill training".

The purpose of the lesson: to show students the basics of drill training.

Contents: basic elements of formation. Drill stance. Individual drill training. Duties of officials before formation and in formation.

Lesson No. 6

Topic: "Means of communication".

The purpose of the lesson: to tell students about maritime communications, to teach the simplest types of communications.

Contents: types of ship communications: visual, sound. Maritime visual communications. Code of signals. Coloring flags. Flag semaphore. Learning the semaphore alphabet. Training in receiving and transmitting flag signals.

Lesson No. 7

Topic: "Navigation work".

The purpose of the lesson: to give students basic knowledge about navigation and navigational skills.

Contents: sea direction. Bearing and distance. Length and speed measures. Navigation charts. Plotting instrument.

Lesson No. 8

Topic: "Fire training".

The purpose of the lesson: to introduce students to the main types of small arms of the Russian army and navy, and to teach them how to use them.

Contents: tactical and technical characteristics of the Kalashnikov assault rifle (AK-74). The AK's hardware. Performing partial disassembly and assembly of the AK-74. Safety measures when handling weapons.

Lesson No. 9

Topic: "Fundamentals of naval affairs".

Objective of the lesson: to introduce students to the composition of the Russian Navy.

Contents: structure of the Russian Navy. Ship composition of the Russian Navy. Armament of the Navy.

Lesson No. 10

Topic: "Boat business".

The purpose of the lesson: to introduce students to the structure of the simplest training watercraft – the YAL-6 boat – and the basics of its control, and to consolidate the acquired knowledge about the structure, equipment and control of the boat in practice.

Contents: the structure of a six-oared dinghy. Controlling a dinghy with oars. Rules for boarding and behavior of rowers in a dinghy. Command words and their implementation when moving a dinghy with oars. Safety measures during training on the water and competitions. The procedure for rescuing people on the water. Practical training with going out to sea on a dinghy YAL-6. Rowing training with oars.

Additional education program "Cabin boys of the Russian fleet"

1. A set of basic characteristics of the program

1.1. Explanatory note

The priority task of the Russian Federation, outlined in the strategic documents of the state, is the formation of the younger generation, possessing knowledge and skills that meet modern requirements, as well as the upbringing of a generation that shares traditional moral values, ready for peaceful creation and defense of the Motherland. The key tool for solving this problem is the upbringing and education of children.

Supplementary education is viewed not simply as preparation for life or mastering the basics of a profession, but as the foundation of life – a continuous process of self-development, self-improvement, and exciting and joyful consumption of intellectual resources. In supplementary education, the younger generation learns to dream, design, plan, and transform their lives and the surrounding reality, striving for perfection and harmony in their creative work. Such education is based on freedom of thought and action, creativity, partnership, and respect for the dignity of each individual.

One of the current areas of additional education for children and youth is primary maritime education.

Historically, Russia has been a great maritime power, based on its spatial and geophysical features, place and role in global and regional international relations. It is the only country in the world that owns colossal sea spaces and seas unique in their biodiversity (almost 900 species of fish, including more than 250 commercial ones, many marine mammals, mollusks and crustaceans). In the register of seaports Russia includes 63 ports, which are part of five sea basins.

The Maritime Doctrine of the Russian Federation defines maritime activities as the activities of the Russian Federation in the field of study, development and use of the World Ocean in the interests of ensuring

national security, sustainable economic and social development of the state. One of the principles of the national maritime policy is the preservation and improvement of the system of personnel training, education and upbringing of youth.

At present, the Russian government pays great attention to the national maritime policy. According to the target settings of the Maritime Doctrine of the Russian Federation and the "Strategy for the Development of Maritime Activities of Russia until 2030" (increasing the efficiency of the main types of maritime activities), by 2030 it is expected that maritime activities will be highly efficient, the state will develop sustainably, national interests and security of the Russian Federation in the World Ocean will be protected and ensured, and Russia's international authority will be strengthened. But achieving these results is impossible without the education and training of specialists in all areas of the national maritime policy.

Besides, According to the Decree of the President of the Russian Federation No. 309 of 07.05.2024 "On the national development goals of the Russian Federation for the period up to 2030 and for the future up to 2036", one of the national goals is "realization of the potential of each person, development of his talents, education of a patriotic and socially responsible person", which also indicates the need to improve educational, research and patriotic work with children, including in the maritime direction as part of the history and culture of Russia.

1.2. Goals and objectives of the program

The program of additional maritime education implemented at the Russian Children's Center "Ocean" is, in fact, an element of primary maritime education. Its main goal is to develop interest in the sea and maritime affairs, creating conditions for the self-realization of the student's personality in the process of familiarization with activities at sea.

The implementation of the tasks set out in the above documents is impossible without taking into account the requirements set out in the "Concept for the Development of Additional Education for Children until 2030", approved by the Order of the Government of the Russian Federation dated 31.03.2022 No. 678-r (as amended on 21.10.2024). Therefore, when implementing the educational process under the maritime profile program, the following tasks are taken into account:

1. Creating conditions for developing a sense of pride and involvement in the heroic past of the Pacific Fleet, awareness of its historical significance and role in the fate of Russia.
2. To promote the acquisition of positive experiences through interactions between program participants and representatives of maritime professions in order to motivate them to choose a maritime profile during their studies.
3. Formation of initial professional skills and competence in the field of maritime affairs.
4. Development of management competencies through a system of individual and collective growth.

The goal of the program is to introduce students to the sea, its flora and fauna, the diversity of marine professions and the basics of human life at sea; to create conditions for the development of children's horizons and their self-development, as well as for self-realization of the individual in the process of introduction to marine sports and marine training.

1.3. Program content

One of the effective tools that allows the RCC "Ocean" to fulfill its tasks is the developed program of additional education "Cabin Boys of the Russian Fleet", aimed at familiarizing teenagers with the simplest basics of maritime affairs and the maritime profession. The attractiveness of this program for modern teenagers is due to the fact that it allows them to see and try to apply their knowledge and skills in the field of managing a small vessel, to feel like a young sailor. The program is presented in three modules:

- for students who have not encountered the sea or maritime professions in their lives before coming to Ocean – the module "Hello, Sea!";
- for students who have not yet studied the basics of maritime affairs, but would like to become familiar with the maritime and military-patriotic direction of study – the module "Seamanship – Junior";
- for children studying in children's marine clubs and having basic skills in maritime affairs – the module "Seamanship – Pro".

The content of the program is appropriate for the age of the students, aged 11–17, and takes into account the natural interest of teenagers in socially significant and very promising activities, their need to choose a future profession and life path.

The module "Hello, Sea!" is aimed at introducing the sea to children who have come to the RCC "Ocean" from landlocked regions, as well as an overview of marine professions and the specifics of studying the sea. It opens up new horizons for children to learn and develop.

The module "Seamanship – Junior" gives students a general overview of maritime professions and basic knowledge of seamanship, providing an opportunity to consolidate the acquired knowledge and skills in practice. A mandatory element of the module is sea practice on YAL-6 boats, where many children find themselves on board a floating craft for the first time in their lives and go out to sea.

The module "Seamanship – Pro" helps students to generalize the knowledge they have acquired during their training in marine clubs and to consolidate it in practice using a small vessel control simulator, YAL-6 boats and yachts of the "Cadet" and "Optimist" types. In addition to theoretical and practical classes, a mandatory component of the module is the fulfillment of standards included in specialized competitions in marine all-round events, which include: rowing and sailing race on boats, competitions in rigging and communications, swimming and cross-country. By fulfilling the standards, each student thus gets an additional opportunity to prove themselves to the maximum and to demonstrate their skills at a decent level in their chosen future profession.

For ease of mastering the material being studied, each student is provided with methodological literature developed with the participation of the partners of the Russian Children's Center "Ocean" during the first sea shifts under the auspices of the "Marine Youth League".

1.4. Planned results of the program implementation

During the implementation of the program, a number of key results can be identified among the planned ones:

- the number of students who have firmly decided to link their future with the sea and maritime professions, having entered

maritime higher and secondary vocational educational institutions after completing high school;

- the number of students interested in studying and mastering the basics of maritime professions as part of additional education in children's maritime clubs;
- the number of students who chose to lead a healthy lifestyle and engage in marine and water sports.

Working with partner organizations will allow us to monitor the implementation of these results.

2. Complex of organizational and pedagogical conditions

2.1. Terms of implementation of the program "Cabin boys of the Russian fleet"

RCC "Ocean" is located in a unique geographical area on the coast of the Sea of Japan in the picturesque Emar Bay. Many participants in educational programs see the sea for the first time in RCC "Ocean", the sea is an extensive base for scientific research, and all the developments in the development of marine spaces serve as an excellent basis for the formation of an environment for higher quality and more interesting education.

The created educational environment allows the student – the program participant – to be immersed in the life of a sea crew, to develop unique skills and expand the scope of his interests. A modern socio-cultural environment for the development and socialization of children has been created.

Educational activities include the following types of work:

- educational and enlightening – children study the history of the Russian fleet and the basics of maritime affairs, participate in marine scientific research and development, and create their own projects;
- practical – development of children's practical skills through conducting training sessions using the fleet's equipment (boats, yachts, simulators, training complexes) and partner organizations (excursions to operating ships and training complexes);

- sports – development of children's sports skills and their introduction to marine sports, as well as holding marine-focused competitions);
- public – interaction with patriotic public associations, volunteer organizations, children's specialized clubs and other non-profit organizations, government agencies and executive authorities, military units.

2.2. Forms of motivation

The versatility of the "Cabin Boys of the Russian Fleet" program determines a wide range of forms of motivation for students. These forms include:

- certificates for achievements in mastering both the module as a whole and individual practical elements;
- "gold", "silver" and "bronze" badges of the GTO complex for the fulfilled standards of the Complex, which are part of the marine all-around;
- certificate of completion of basic training in operating a small vessel;
- boat master's certificate.

One of the promising types of motivation, the implementation of which into the program is currently underway with the participation of partner educational organizations, is the issuance of grants for admission to the relevant maritime universities of Vladivostok.

2.3. Evaluation materials

The assessment materials for the program modules are quite diverse. This is due to the difference in the content of the modules, their different tasks and goals.

So, for the module "Hello, Sea!" the assessment material is an essay that students write upon completion of the module. In their essay, they describe their attitude to the material covered, what interested them in it, what opportunities it opened up, what questions the module material raised. The essay can also provide information on whether the module was career-oriented for a specific student.

For the module "Seamanship – Junior" the assessment material is formed during each practical lesson based on the intermediate control of the studied material. The effectiveness of the students' mastery of the basics of seamanship is assessed by completing specific tasks, be it flag signaling, formation techniques, or solving the simplest navigation task.

For the module "Seamanship – Profi" the assessment material is the results of the standards fulfillment for each topic within the framework of the championship in sea all-round competition "Young Sailor". Summarizing the general results of the sea shift allows to identify both individual students and entire teams that have most successfully mastered the educational material of the module.

The creative approach of the teaching staff of the Russian Children's Center "Ocean" allows for the implementation and use of other options for assessing students that do not contradict the main idea of the Program and individual modules, in particular.

2.4. Educational modules of the program

2.4.1. Module "Hello, Sea!"

The module is aimed at solving the following problems:

1. Pedagogic:
 - fostering curiosity;
 - fostering a desire to apply acquired knowledge;
 - to instill in students pride in their country and its achievements.
2. Developmental:
 - development of a sustainable interest in studying the sea in various aspects and applying the acquired knowledge in practice;
 - development of interest in self-education and research;
 - development of interest in sports and healthy lifestyle.
3. Educational:
 - familiarizing students with the history of human exploration and development of the sea;
 - training in independent search for information of interest;
 - training in maritime safety measures.

Module Contents

Lesson No. 1

Topic: "Getting to know the sea".

Objective of the lesson: to introduce students to the history and geography of the study and development of the sea by man, and to the role of the sea in the history and life of Russia.

Contents: geography of seas and oceans. History of navigation and development of watercraft. Maritime borders and possessions of Russia. The Pacific Ocean and the Sea of Japan.

Lesson No. 2

Topic: "Marine biology".

Objective of the lesson: to introduce students to the diversity of life in the marine environment.

Contents: flora and fauna of the World Ocean and the Sea of Japan in particular.

Lesson No. 3

Topic: "Marine professions".

Objective of the lesson: to introduce students to the main professions of sailors. To give an idea of the organization of work at sea.

Contents: civilian marine professions. Naval professions. Common and differences between them. Who is in charge on the ship. Demonstration exercise on a small vessel control simulator.

Lesson No. 4

Topic: "Sea exploration".

Objective of the lesson: to show students the versatility of studying the sea.

Content: scientific research of the sea. Research of the sea for commercial purposes. Research equipment and gear.

Lesson No. 5

Topic: "Safety at sea".

Objective of the lesson: to introduce students to weather phenomena at sea, types of maritime disasters and means of rescuing people.

Oceanic practice: the «Oceanic Squadron» squad

Contents: hydrometeorology at sea. Types of marine rescue equipment and the basics of their use.

Lesson No. 6

Topic: "The role of the sea in modern life".

The purpose of the lesson: to introduce students to the influence of the sea on human life these days.

Contents: sea transport. The sea in art and creativity. Sea sports.

Lesson No. 7

Topic: "The simplest floating craft and their use".

The purpose of the lesson: to introduce students to the simplest marine watercraft used by humans and the scope of their application in practice.

Contents: structure, purpose and rules for using the YAL-6 boat at sea. Controlling the boat with oars. Command words and their implementation when moving the boat with oars. Safety measures when conducting classes on the water.

Lesson No. 8

Topic: "Maritime practice".

Objective of the lesson: to consolidate the students' acquired knowledge about watercraft and the YAL-6 boat.

Contents: rules for boarding and rowers' behavior in a boat. Safety instructions for water activities. Going out to sea on the YAL-6 boat using oars.

Curriculum

Item No.	Topic	Number of hours			Forms of control
		theory	practice	total	
1.	Getting to know the sea	1	-	1	Concurrent observation of the mastery of the practical part of the material studied. The final form of control is the writing of an essay by students on the topic from the material studied that most interested them

Item No.	Topic	Number of hours			Forms of control
		theory	practice	total	
2.	Marine biology	2	-	2	
3.	Maritime professions	1	1	2	
4.	Marine exploration	1	-	1	
5.	Safety at sea	2	-	2	
6.	The role of the sea in modern life	1	-	1	
7.	The simplest floating craft and their use	2	-	2	
8.	Maritime practice	1	2	3	
Total		11	3	14	-

Planned results. Upon completion of the module, students will receive:

- an understanding of the sea, marine research and maritime professions;
- the opportunity to generalize the scattered knowledge they had about the sea.

The module helps to stimulate students' self-development and develop their competence in matters related to the sea.

While studying the module content, students will know:

- history of the development of the navy;
- basic concepts and terms used in matters of maritime activities;
- rules of conduct and safety measures at sea in various weather conditions;
- safety measures and requirements when working at sea;
- the structure and main equipment elements of the YAL-6 boat.

Students will be able to:

- distinguish between the flora and fauna of the World Ocean;
- determine the degree of sea roughness and the level of its danger in specific weather conditions;

- perform the simplest actions when moving at sea on rowing watercraft.

The final essay written by students will allow them to assess the degree of career guidance results of the material studied and the level of competence they have acquired in the issues studied.

The short duration of the module is due to the duration of the shift at the Russian Children's Center "Ocean", but despite this, the module provides an opportunity to develop students' competence in matters of studying the sea and interest in the issues being studied, as well as encourage them to independently study the specifics of the sea.

2.4.2. Module "Seamanship – Junior"

The module is aimed at solving the following problems:

1. Pedagogic:
 - to cultivate perseverance and hard work;
 - to foster pride in one's country and its achievements in the maritime sphere;
 - develop personal qualities: responsibility, attentiveness, communication skills, team skills;
 - to promote the emergence of professional interest in this type of profession.
2. Developmental:
 - develop a lasting interest in maritime affairs;
 - develop skills to perform primary duties on a ship and small vessel;
 - develop the ability to work according to the proposed instructions;
 - develop motor skills.
3. Educational:
 - familiarizing students with the history of the development of the fleet and maritime affairs;
 - training in teamwork;
 - training in maritime safety measures.

Program content

Lesson No. 1

Topic: "Introduction to maritime affairs. History of the development of the Russian fleet".

Objective of the lesson: to introduce students to the main significant events and persons in the history of the Russian fleet.

Contents: the origins of shipping and navigation in Russia. The foundation of the Russian regular fleet. Great victories of the Russian fleet. The most famous naval commanders of Russia. The history of the development of the Pacific Fleet. Combat traditions of Russian sailors.

Lesson No. 2

Topic: "Uniform of the Navy and civilian sailors".

Objective of the lesson: to introduce students to naval clothing, its types and the history of its creation.

Contents: history of naval uniform. Elements of uniform. Shoulder straps and insignia. Types of naval uniform depending on the season.

Lesson No. 3

Topic: "Ship Structure".

Objective of the lesson: to tell students about how any ship is built and why it stays on the water.

Contents: main properties of a ship. Components of a ship's hull. Water tightness of a ship's hull. Survivability of a ship.

Lesson No. 4

Topic: "Rigging".

Objective of the lesson: to show students the main types of sea knots used by sailors and their application.

Contents: ship-rigging items. Marine knots. Use of knots in maritime affairs. Knot groups by purpose. The most commonly used and universal knots: reef knot, bowline knot, sheet knot, bayonet knot, noose knot, boat knot.

Lesson No. 5

Topic: "Drill training".

The purpose of the lesson: to show students the basics of drill training.

Contents: Basic elements of formation. Drill stance. Individual drill training. Duties of officials before formation and in formation.

Lesson No. 6

Topic: "Means of communication".

The purpose of the lesson: to tell students about maritime communications, to teach the simplest types of communications.

Contents: types of ship communications: visual, sound. Maritime visual communications. Code of signals. Coloring flags. Flag semaphore. Learning the semaphore alphabet. Training in receiving and transmitting flag signals.

Lesson No. 7

Topic: "Navigator's business".

The purpose of the lesson: to give students basic knowledge about navigation and navigational skills.

Contents: sea direction. Bearing and distance. Length and speed measures. Navigation charts. Plotting instrument.

Lesson No. 8

Topic: "Fire training".

The purpose of the lesson: to introduce students to the main types of small arms of the Russian Army and Navy, and to teach them **how to use them**.

Contents: tactical and technical characteristics of the Kalashnikov assault rifle (AK-74). The AK's hardware. Performing partial disassembly and assembly of the AK-74. Safety measures when handling weapons.

Lesson No. 9

Topic: "Fundamentals of naval affairs".

Objective of the lesson: to introduce students to the composition of the Russian Navy.

Contents: structure of the Russian Navy. Ship composition of the Russian Navy. Armament of the Navy.

Lesson No. 10

Topic: "Drill training for divisions".

The purpose of the lesson: to teach students the basics of drill training as part of a formation.

Contents: drill training as part of a unit. Giving and executing commands. Military rituals.

Lesson No. 11

Topic: "Boat business".

The purpose of the lesson: to introduce students to the structure of the simplest training vessel – the YAL-6 boat – and the basics of its control.

Contents: the structure of a six-oared dinghy. Controlling a dinghy with oars. Rules for boarding and behavior of rowers in a dinghy. Command words and their implementation when moving a dinghy with oars. Safety measures during water training and competitions. Procedure for rescuing people on the water.

Lesson No. 12

Topic: "Fire training".

Objective of the lesson: to teach students how to shoot from an AK-74 in laser simulation mode.

Contents: electronic (laser) weapons. Safety precautions when handling electronic weapons. Rules for shooting. Shooting from an AK-74 from a standing position in laser imitation mode. Shooting from a PM from a standing position in laser imitation mode.

Lesson No. 13

Topic: "Maritime practice".

The purpose of the lesson: to consolidate the acquired knowledge about the structure, equipment and control of the YAL-6 boat in practice. To teach children rowing.

Contents: final practical lesson with going out to sea on the YAL-6 boat. Rowing training. Duration – 3 hours.

Curriculum

Item No.	Topic	Number of hours			Forms control
		theory	practice	total	
1.	Introduction to Seamanship. History of the Development of the	0.8	0.2	1	Concurrent observation of the development of the practical part of the material

Oceanic practice: the «Oceanic Squadron» squad

Item No.	Topic	Number of hours			Forms control
		theory	practice	total	
	Russian Fleet				being studied; at the end of practical classes – conducting practical intermediate control on the material studied
2.	Uniform of the Navy and civilian sailors	0.5	0.5	1	
3.	Ship structure	0.4	0.6	1	
4.	Rigging	0.3	0.7	1	
5.	Drill training	0.3	0.7	1	
6.	Means of communication	0.3	0.7	1	
7.	Navigator's business	0.4	0.6	1	
8.	Fire training	0.4	0.6	1	
9.	Fundamentals of Naval Affairs	0.4	0.6	1	
10.	Drill training for divisions	0.2	0.8	1	
11.	Boat business	0.7	0.3	1	
12.	Fire training	0.2	0.8	1	
13.	Maritime practice	0.2	2.8	3	
Total		5.1	9.9	15	-

Planned results. As a result of the module implementation, students gain an understanding of maritime professions and service at sea, and algorithms for actions in various situations. The module forms a professional interest in this type of educational and work activity, teaches how to work with the material part, showing attentiveness, and taking responsibility for the personal result of the actions performed.

During the course of studying the module, students will know:

- history of the development of the Russian fleet;
- basic concepts and terms used in maritime affairs;
- the basics of working with the material part of some ship professions;
- safety measures and requirements when working at sea;
- the structure and main equipment elements of the YAL-6 boat.

Students will be able to:

- distinguish between the ranks and shoulder straps of military personnel and sailors of the civilian fleet;
- perform drill techniques individually and as part of a unit;

- tie the main types of sea knots used in sea all-round competitions and applied in boat and yachting;
- perform the reception and transmission of simple texts using a flag semaphore;
- perform partial assembly and disassembly of the AK-74 assault rifle.

Working in a study group allows students to better master the material through mutual assistance and analysis of mistakes made in practice.

Despite the short duration of the module, it provides an overview of a number of issues related to work at sea and service in the Navy, and is designed to help the teenager in forming his life position, and promotes the development of the student's interest in professions in the marine technical field.

At the end of the module, students demonstrate in their group what they have learned, which is also an element of the final assessment.

2.4.3. "Seamanship – Pro" module

The module is aimed at solving the following problems:

1. Pedagogic:
 - to cultivate perseverance and hard work;
 - develop and consolidate personal qualities: responsibility, attentiveness, communication skills, team skills;
 - to promote interest in maritime professions.
2. Developmental:
 - development of team and professional skills of students;
 - development of skills for performing primary duties on a ship and small vessel;
 - development of the ability to work according to the proposed instructions;
 - development of motor skills.
3. Educational:
 - training in operating complex ship equipment;
 - training in teamwork;
 - training in elements of time management and service regulations on board a ship;
 - training in maritime safety measures.

Module Contents

Lesson No. 1

Topic: "Signaling and communication".

Objective of the lesson: to consolidate students' knowledge of types of maritime communications, to familiarize them with Global Maritime Distress and Safety System (GMDSS).

Contents: 1.1. Types of ship communications: visual, sound, radio communications. Flag semaphore. Global maritime distress and safety system. 1.2. Compliance with standards for receiving and transmitting flag signals.

Lesson No. 2

Topic: "Rigging".

Objective of the lesson: to consolidate students' knowledge and skills in tying basic types of sea knots.

Contents: 2.1. Ship's (marine) rigging. Knot groups by purpose. Knots used in rigging competitions: reef, bowline, sheet, bayonet, noose, boat. 2.2. Fulfilment of rigging standards (tying 6 knots for a time).

Lesson No. 3

Topic: "Mooring works".

Objective of the lesson: to consolidate students' knowledge of the organization of mooring operations on a ship. To practice throwing a mooring line.

Contents: 3.1. Mooring operations on the ship. Mooring devices. Feeding the ejection. 3.2. Fulfilment of the standard for feeding the ejection (throwing the lightness).

Lesson No. 4

Topic: "Fire training".

Target classes: developing students' shooting skills and assembling and disassembling the Kalashnikov assault rifle. Introduction to the electronic shooting simulator.

Contents: 4.1. Performance characteristics of the Kalashnikov assault rifle. The AK hardware. Compliance with standards for partial disassembly and assembly of the AK. 4.2. Performing training shooting from the AK from a standing position in laser simulation mode.

Lesson No. 5

Topic: "Navigator's business".

Objective of the lesson: to consolidate students' knowledge and skills in the field of navigation and ship control.

Contents: 5.1. Direction at sea. Bearing and distance. Measures of length and speed. Navigation charts. Plotting tool. 5.2. Performing an exercise on the small-sized fleet navigator's simulator complex.

Lesson No. 6

Topic: "Drill training".

The purpose of the lesson: to train and consolidate team skills and military coherence of the teams participating in the shifts.

Contents: 6.1. Basic elements of formation. Individual drill training. Drill training as part of a unit. Procedure for giving commands to control the formation. 6.2. Competition-inspection of the formation and the marching song.

Lesson No. 7

Topic: "Fundamentals of Seamanship".

Objective of the lesson: study of ships based in the Russian Pacific Fleet, their armament. Reinforcement of knowledge about the structure of the Navy.

Contents: structure of the Russian Navy. Ship composition of the Russian Navy. Ships of the Pacific Fleet and main naval bases in the Far East. Armament of the Navy.

Lesson No. 8

Topic: "Security measures".

Objective of the lesson: to consolidate students' knowledge of safety measures when conducting classes on the water, to study the main types of life-saving equipment.

Contents: safety measures during water activities and competitions. Types and rules for using life-saving equipment on the water.

Lesson No. 9

Topic: "Maritime practice".

The purpose of the lesson: to consolidate the participants' skills in rowing and sailing. Conducting a rowing and sailing race.

Oceanic practice: the «Oceanic Squadron» squad

Contents: final practical lesson with going out to sea on the YAL-6 boat. Rowing training. Duration – 4 hours.

Curriculum

Item No.	Topic	Number of hours			Forms control
		theory	practice	total	
1.	Signaling and communication	1	1	2	Fulfilment of standards for each topic within the framework of the championship in marine all-round competition "Young Sailor "
2.	Rigging	1	1	2	
3.	Mooring works	1	1	2	
4.	Fire training	1	1	2	
5.	Navigator's business	1	1	2	
6.	Drill training	1	1	2	
7.	Fundamentals of Seamanship	-	1	1	
8.	Security measures		1	1	
9.	Maritime practice		4	4	
Total		6	12	18	-

In addition to children's participation in the educational modules "Hello, Sea!", "Seamanship – Junior" and "Seamanship – Pro", the sea component within the framework of additional education (School of Creative Practices of the Russian Children's Center "Ocean") is included in other programs of additional education for children, allowing them to expand their horizons of knowledge and skills, give an idea of the sea, its resources and sea professions, and contribute to the formation of social competence of students.

Elements of the marine profile in the programs of the additional education department of the Russian Children's Center "Ocean"

The implementation of the "Cabin Boys of the Russian Fleet" Program involves interaction with the following additional education programs of the Russian Children's Center "Ocean".

Item No.	Additional program education	Marine profile element integrated into the program
1.	3D Modeling Lab	Creating a 3D model of a ship
2.	DIY toy	Making a sea-themed toy
3.	Paper art	Making paper models of sea fauna inhabitants
4.	Robotics	Creation of marine robots: research, loading and unloading, measuring, etc.
5.	School of Economics	Study of economic activities of fishing and other marine extractive companies
6.	Educational and research laboratory	Study of flora and fauna of the Sea of Japan

2.5. Subdivisions of the ocean flotilla in the structures of general and additional education of the city of Vladivostok

In the village of Emar, where the RCC "Ocean" is, there is also located Municipal Budgetary General Education Institution "Secondary School No. 72". This school is attended by children living in the village, including the children of the Center's employees. At the same time, due to the small number of students, some of the school premises are empty. Additional education for children in the village of Emar is practically not implemented. Students, especially high school students, do not receive information outside of class time that would help them get career guidance, help in further choosing a profession, in obtaining secondary specialized or higher education. On the territory of the village itself, construction of a residential building has begun both for RCC employees and within the framework of the social program "Affordable Housing", which will lead to an increase in the number of residents of the village and the number of school-age children.

In cooperation with the administration of the Municipal Budgetary General Education Institution "Secondary School No. 72", the Department of Additional Education of the Department for Work with Municipal Educational Institutions of the Vladivostok City Administration, a children's marine club was established on the basis of Secondary School No. 72, where schoolchildren study maritime affairs and acquire basic skills of the maritime profession. The beginning of children's training in the club coincides with the beginning of the school year. The basic training

program is based on the programs under which training takes place in the maritime clubs of Vladivostok: "Flotilla "Vostok", "Flotilla "Varyag" and "Meridian" club. Many elements of training in the club represent a more detailed program "Cabin Boys of the Russian Fleet". The following organizations provide assistance in the work and development of the club: the Vladivostok Maritime Assembly, the Primorsky Regional Branch of the Fleet Support Movement, the public organization "Yungi Vseh Pokoleniy (Young sailors of all generations)", the above-mentioned children's marine clubs, higher and secondary marine institutions and the Vladivostok City Duma. Moreover, at the moment the issue of creating children's marine clubs is very relevant both in Vladivostok and in the entire Far Eastern region. In the autumn-spring period, according to the curriculum, the club's students undergo theoretical training with small elements of practice, for which the equipment of the "Ocean Squadron" squad is used. In the summer, most of the students' time is occupied with practical classes on boats and centerboard boats, competitions in seamanship, excursions to museums and to active ships of the fleet, participation in social and patriotic events. The training of children also includes mastering the basics of safety and health protection.

Students enrolled: schoolchildren by age groups:

- Grades 2–4 – initial introductory course. Preparation for admission to the Presidential Cadet School (for boys);
- Grades 5–9 – middle course – training under the "Maritime training" program, preparation for admission to colleges and vocational schools;
- 10–11 grades – senior course – advanced training in the maritime profile, preparation for admission to maritime universities and military colleges, for work at sea and service in the armed forces.

Subjects studied: "History of the Navy", "Naval Visual Signal Communication", "Seamanship", "Drill Training", "Fire Training", "Navigation", "Ship Structure", "First Aid".

2.6. References

1. The Great Naval Encyclopedia / D. V. Brusilov; edited by I. N. Nikolskaya. – M.: AST, 2015. – 162 p. – (Military encyclopedias for children).

2. Builova, L. N. Additional education: regulatory documents and materials / L. N. Builova, G. P. Budanova. – M.: Education, 2008.
3. Decree of the President of the Russian Federation No. 309 of 07.05.2024 "On the national development goals of the Russian Federation for the period up to 2030 and for the future up to 2036" // President of Russia: official website. – URL: <http://kremlin.ru/events/president/news/73986> (date accessed: 10.03.2025). – Access mode: free.
4. The concept for the development of additional education for children until 2030, approved by the order of the Government of the Russian Federation of 31.03.2022 No. 678-r (as amended on 21.10.2024) // Government of Russia: official website. – URL: <http://static.government.ru/media/files/3fIlgkklAJ2ENBbCFVEkA3cTOsiypicBo.pdf> (date of access: 28.02.2025). – Access mode: free.
5. Kopp, M. Training course for lifeboat supervisors / M. Kopp. – 2nd ed., rev. and additional – M.: DOSAAF, 1988. – 160 p.
6. Kostin S. V. "Experience of the children's flotilla "Varyag" / S. V. Kostin, L. I. Ogorodova, Yu. L. Rakoed. – Vladivostok: DOSAAF, 2011.
7. Methodology and technology of work of the teacher of additional education: a teaching aid / V. P. Golovanov. – M.: Vlados, 2004. – 239 p.
8. The Maritime Doctrine of the Russian Federation, approved by the Decree of the President of the Russian Federation dated July 31, 2022 No. 512 // President of Russia: official website. – URL: <http://static.kremlin.ru/media/events/files/ru/xBBH7DL0RicfdtdWPol32UekiLMTAycW.pdf> (date of access: February 28, 2025). – Access mode: free.
9. Handbook of the future commander: basic military training – Minsk: Harvest, 2001. – 432 p.: ill.
10. Fundamentals of Naval Affairs: a textbook / R. N. Akimov, A. I. Duritsin. – M.: Military Publishing House of the USSR Ministry of Defense, 1961. – 376 p. – (Textbook for universities).
11. Letter of the Ministry of Education and Science of the Russian Federation No. 06-1844 dated 11.12.2006 "On Model

- Requirements for Supplementary Education Programs for Children" // Legal Information System "Legalact": website. – URL: <https://legalacts.ru/doc/pismo-minobrnauki-rf-ot-1112-2006-n-06-1844/> (date of access: 14.08.2014). – Access mode: free.
12. Competition rules for institutions of additional education for children, cadet schools, boarding schools, military-patriotic clubs and other institutions and organizations cultivating the all-around event "Young Sailor" // MTC named after Admiral D. N. Senyavin: official website. – URL: <https://clck.ru/3CVLTw> (date of access: 14.08.2024). – Access mode: free.
 13. The program of additional education is the main document of the teacher: information and methodological collection. Issue No. 5 / N. A. Leonenko, T. V. Zavyalova, A. V. Kuznetsov. – St. Petersburg: District resource center of school additional education of the education department of the Administration of the Krasnogvardeisky district of St. Petersburg, 2010. – 60 p.
 14. Strategy for the Development of Maritime Activities of the Russian Federation until 2030: approved by the Order of the Government of the Russian Federation No. 1930-r dated 08.12.2010 // Electronic Fund of Legal and Regulatory Documents: website. – URL: <https://docs.cntd.ru/document/561091982> (date of access: 14.08.2024). – Access mode: free.
 15. Technology of development of the author's program of additional education of children, its functions and main stages of development / V. A. Gorsky // Additional education. – 2004. – No. 1. – P. 29–33.

Conclusion

Based on the results of its work over eight years, the "Ocean Squadron" squad has truly become a unique platform for organizing additional education, upbringing and health improvement for children aged 11 to 17 years.

Over this period, thematic programs of additional education on maritime topics were developed and implemented, which take into account the modularity of the programs, allowing to solve the issues of children's socialization; immersion in the environment, professional orientation with the participation of educational institutions of higher education, combining elements of education, health and recreation; development of the student's established sustainable interest in maritime affairs. A master program on maritime topics is being tested and developed, the modules of which are ranked by levels, which allows them to be used in teaching children with different training, with the participation of educational institutions of higher education and general education organizations.

In the future, the "Ocean Squadron" may become a regional platform for sailing regattas, competitions and championships of a marine nature. The possibility of creating a marine garden is being developed, the "Atlas of Marine Professions and Activities Related to the Sea" is being prepared, as well as a marine module as a socio-cultural practice for popularizing maritime affairs, which can be held in the autumn-winter period for permanent squads on programs of any focus.

Much that is new is being generated in the work of the young squad, preserving the best traditions of the Center, and this allows us to say that the "Ocean Squadron" has become a worthy, independent naval squad of the Russian Children's Center "Ocean".

Today the "Ocean Squadron" squad is:

- the only thematic squad in the Center that fully supports its profile;
- a modern educational platform for the implementation of experimental programs;
- a modern platform for full pre-professional immersion with the opportunity to communicate and learn from industry representatives recognized by the professional community;

- the only platform in the Far East for collecting and accumulating advanced experience in the field of maritime education and training of children and adolescents!

The squad, at its young age, has already firmly occupied its niche in the history of "Ocean" and beyond, as evidenced by: the demand for the implemented programs among the thematic programs of the Center; the constantly growing demand for participation from children; participation of the squad administration in all-Russian conferences and forums for the purpose of exchanging experience; victories of programs in all-Russian competitions. This is done by the efforts of the "Ocean Squadron" team so that a child arriving in "Ocean" could say upon returning home: "Being at "Ocean" was not only good, but also useful!" A lot has been done for this, but even more awaits ahead.

The book "Blue and white-striped heart" is a bright and inspiring result of many years of experience in organizing and conducting additional general development programs on the marine theme. This collection is a unique testimony to the first steps and successes of the "Ocean Squadron" marine squad, where on every page you can feel the pulse of exciting sea adventures and genuine concern for the development of each child.

Let this collection become not only a valuable resource for you, but also a source of inspiration. The materials combine both time-tested methods and modern educational technologies. They help to create a unique educational environment where children can develop, explore and learn, immersing themselves in the exciting world of the sea. We are confident that the experience accumulated in this book will serve as a solid foundation for the development of new interesting programs that will help to cultivate a love for the sea in children, develop their creativity and broaden their horizons.

"Ocean Squadron" is just beginning its long and interesting journey, and we believe that many more discoveries and achievements are ahead. Thank you for your interest in our book and hope that all the ideas and methods offered in it will be useful for your work and will serve as a foundation for the harmonious development of children who are fascinated by the boundless ocean and sea travel. May their hearts, like the pages of this collection, be filled with a thirst for adventure, a desire to learn about the unknown and a desire to scale new heights!

Conquering the Open Seas



Oceanic practice: the «Oceanic Squadron» squad





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Oceanic practice: the «Oceanic Squadron» squad





Crew Activities





Oceanic practice: the «Oceanic Squadron» squad





Oceanic practice: the «Oceanic Squadron» squad





Oceanic practice: the «Oceanic Squadron» squad



Cabin Boys of the Ocean Squadron



Oceanic practice: the «Oceanic Squadron» squad





Oceanic practice: the «Oceanic Squadron» squad





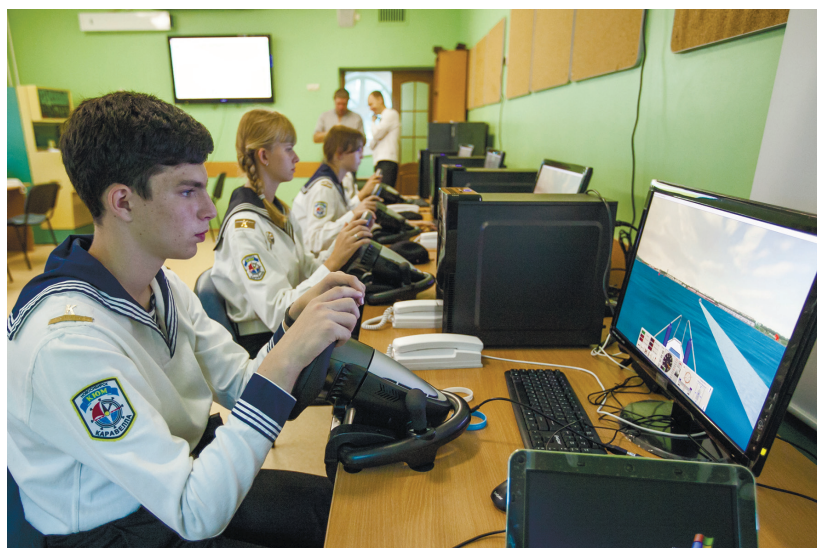
Oceanic practice: the «Oceanic Squadron» squad





Oceanic practice: the «Oceanic Squadron» squad





Oceanic practice: the «Oceanic Squadron» squad





Blue and white-striped heart

Oceanic practice: the "Oceanic Squadron" squad

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