What is ROQED Science?

The interactive ROQED Science program provides simulations and educational demonstrations for middle and high school students. The program contains models and animations in the following subjects: Biology, Physics, Geography and Chemistry. Moreover, the program includes educational models and animations for additional education, and the development of interest in science. It enables students to study Mechanics, Microbiology, Astronomy and Paleontology in more detail.

ROQED SCIENCE, includes a feature to easily create animations using existing models in the program. All models and their components are described in 12 languages.

LET'S START!

After loading the model, a scene will appear where special buttons will be placed that allow you to perform certain manipulations on the model.

WORKING ON PC, LAPTOPS USING MOUSE.

1. In order to move an object from side to side, you need to press (do not let go) the middle mouse button and move your hand in the desired direction. After that, the object will change its position.
2. In order to rotate and view the object from different sides, you need to press the right mouse button (do not release) and move it in different directions. This way, you will be able to get acquainted and study the structure of any object from different sides and from different angles.
3. In order to reduce or enlarge an object, you need to scroll the mouse roller up or down. This will give you the maximum magnification of the object, where you can examine any part of it more deeply.
4. In order to separate any part from the object, you need to click on the "menu" and select the "interaction" button, left-click on the part that you want to separate and

   move it to the side (press and hold) . In this way, you will be able to get to the most difficult to reach parts, separate them and learn something more about them.

   Note: if you have lost an object from the field of view, just click 2 times on the screen, and it will automatically return to its original position, or on the "Research" button in the lower left corner of the screen.

WORKING ON A TOUCH PANEL

1. In order to move an object from side to side, you need to touch the touchpad with one finger (on an empty area of the screen) and move your hand in the desired direction. After that, the object will change its position.
2. In order to rotate and view an object from different angles, you need to touch the touch panel with two fingers (on an empty area of the screen) and move it in different directions. This way, you will be able to get acquainted and study the structure of any object from different sides and from different angles.
3. In order to reduce or enlarge an object, you need to put two fingers on the touch pad . Squeeze them or unclench them. The object will decrease or increase as much as possible. This way, you will be able to study any part of it more deeply.
4. In order to separate any part from the object, you need to click on the "menu" and select the "interaction" button, then select the part that you want to separate and move it to the side (press and hold) with one finger. This way, you will be able to get to the most difficult parts and learn something more about them.

INTRODUCING THE BUTTONS: ASSEMBLE, DISASSEMBLE, ANNOTATIONS, OBJECTS
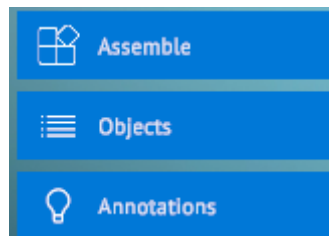
1. "ANNOTATIONS" - are necessary in order to display the name of each object. It works exclusively in the disassembled form of the model. In order to do this, disassemble the model and click on the "ANNOTATIONS" button. Try to rotate the models along the entire axis and the system will automatically accompany each object, displaying the name of each part. Going to the left side of the screen, you will see auxiliary buttons that work automatically.

   LET'S GET TO KNOW THEM!

2. "ASSEMBLE / DISASSEMBLE" - by pressing this button, the model will be automatically disassembled into all components. With the same trailer, by pressing the "COLLECT" button, the model will be assembled in its initial position.

3. "OBJECTS" - serves as a search engine for the necessary objects. By clicking on it, you will have a list of all the parts that make up the entire model.

After selecting the desired object from the provided list, it will turn green. By clicking on the name of the object 2 times, the camera will automatically guide you to its location.

4. Having selected an object, you need to move to the lower right part of the screen and click on the "Description" button. This will allow you to fully familiarize yourself with the methodical part of this model.
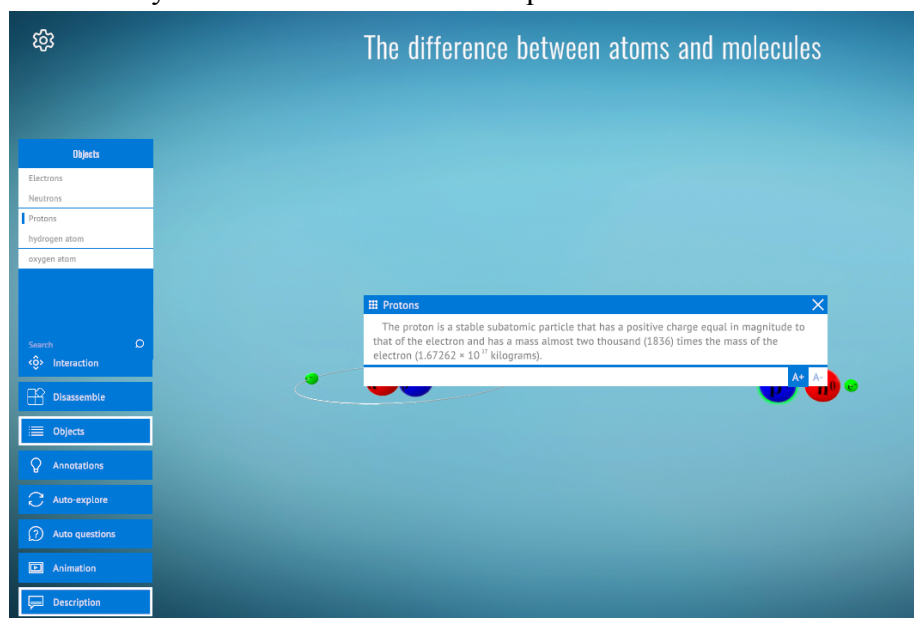
APPENDIX 2

Getting started, you need to select a model in the required category.

Note: When choosing a model with animation, pay attention to the upper left corner.

There must be an appropriate icon . This means that this model has animation.

After the selected model opens, you will automatically be taken to the **"Research"** mode. In order to switch to the **"Animation"** mode, you need to click on the **"Explore"** mode and select the **"Animation"** mode.

"Animation" mode is a sequential display of frames one after another. The main difference of this mode is that all the information is packaged and put in the appropriate order for easy perception of students, where the theory is transformed into a visual picture (graphic) in order to present a larger, and most importantly, high-quality amount of information in a minimum period of time.

Each lesson is explained in plain language. This will make the learning process more interesting, exciting and will arouse special interest among students in the exact sciences.

Important information: *before starting the animation, it is recommended to turn on the sound first* ![sound icon], *and then start the animation.*

ANIMATION CONTROL

LET'S GET STARTED!

1. In order to pause the animation, you need to click on the icon located at the top of the screen ![pause icon]. This will pause the animation and get a better look at the frame. To play it again, click on ![play icon].

2. In order to go to the next or previous frame, you need to click on the buttons ![previous icon] ![next icon] located at the top of the screen.

3. In order to quickly find and switch to the required frame, you must click on the frame name and a list of sequences of all frames will appear. It looks like this:
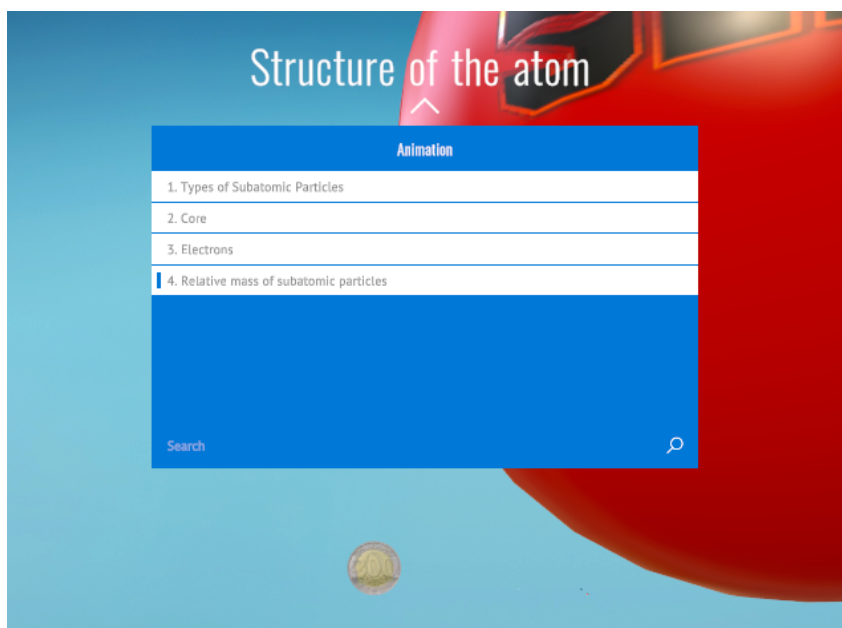
Note: use the slider to scroll down to the end of the list.

4. When viewing the animation, you can also quickly switch to another scene that is related to this theme. To do this, click on the "Objects" button. A list of objects will appear that are related to this animation.

5. In order to return to the previous scene (animation) click on the "Close" arrow, which is located in the upper right part of the screen.

TEST TASKS

Test tasks - allow you to consolidate the knowledge of the material covered by students, as well as identify problematic issues.

ROQED Science, has 6 types of test tasks:

- Label matching;
- Assembly;
- Selecting an object;

LET'S GET TO KNOW EACH ONE IN MORE DETAIL

1. **Label Matching** - this type of test tests the student's knowledge of how to drag and drop suggested options to the appropriate object.

   To do this, you need to select "auto-questions" in the main menu, obtained in the study mode. Then, in the **"Select task type"** box, select the **"Label Matching"** test. The test is created automatically.

   After that, start dragging the suggested options to the corresponding object.

   Note: If the answer is correct, the screen will turn green, and if the answer is wrong, it will turn red.

2. **Assembly** - This type of dragging path allows you to reassemble the model in its original position. This most learning effect remembers the location of all objects.

   To do this, you need to add a page and parse the model into separate objects. Then, in the **"Select task type"** cell, select the **"Assembly"** test. The test is created automatically.

   After that, start dragging the objects to the starting position. The program will prompt the correct error by highlighting.

   Note: If the answer is correct, the screen will turn green, and if the answer is wrong, it will turn red.

3. **Object selection** - this type of test allows you to define/select the correct object by drafting a question.

   To do this, you need to add a page. Then, in the **"Select the type of task"** cell, select the **"Object Selection"** test. The question is created automatically.