Space Death Race

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Premise: A NASA astronaut is stuck on Mars. He has to survive until the rescue ship comes, which takes 7 days. To do that, he needs supplies of Food, Energy, and Oxygen, which can be collected from different space objects (spacecrafts, stations,etc) scattered around. To get supplies from an object, the astronaut has to pass a security quiz. Each day, there is a space disaster, and he must have a certain amount of supplies to survive it. If he survives 5 out of 7 disasters/days, he is guaranteed to be saved.

*****Due to the large amount of memory Alice uses and the complexity of the game, Alice may crash when you play the world. If this happens, try to close as many other applications as possible. (We've found that quitting Chrome helps immensely).*****

Educational Objective:

- Incorporate study quizzes into an interactive game (We recommend multiple choices quiz).
- Game design includes maths, probability (have to choose the right combinations of objects to visit depending on their gains), the physical setting can be integrated with lessons on astrophysics, physics, and environmental science.
- Students would need to be prepared for random questions and will revise materials as they restart it any time they lose - effective for test preparation or lesson revision.

Game Rules:

- There are 7 space disasters. You have to survive 5 out of 7 to win the game.
- To survive a disaster, you need to gain at least a certain threshold amount for each of the 3 supplies: Food, Energy, and Oxygen. Each disaster has a different threshold amount with increasing difficulty to achieve.
- There are different types of space objects that will reward you different gains in terms of Food, Energy, and Oxygen points. Each object has a quiz question. If answered correctly, you will earn the supply points.
- Since each day on space is limited, you can scavenge for supplies at only 3 objects/places (places repeatable) of your choice.
- The amounts of supplies you gained do not carry over and will be reset after each day.
- The gains are in the table below:

Space Objects/Attributes	Food	Energy	Oxygen
Type 1	+1	+1	

Type 2		+1	+1
Type 3	+1		+1

Game Play:

- For each day, the disaster will occur, and the game will display the threshold amounts of supplies needed to survive. You would have to plan wisely (do some math) and choose the right trio of space objects to visit.
- When you get **near** each object (**<10 meters**), there will be description of what it has for you. It only counts as one of the three objects you visit for the day if you press E to take the challenge.
    - If you choose to take the challenge, the game will ask you a randomly selected question. If you answer it correctly, you will not be asked it again.
- Pressing H would switch the camera to view your spacecraft. The three number objects at the top right corner of the screen indicate the amount of each supply you have gained. Red for Food, Gray for Energy, Blue for Oxygen. In the bottom left corner, numbers indicate your goals for Food, Energy, and Oxygen for the day.
- After taking the quizzes at 3 places, the program will compare your supplies to the threshold amounts needed for the day's disaster.
- If you fail to survive a disaster, the game is over. You have to play again.

List of Space Disasters:

- Day 1: Lack of Oxygen
- Day 2: Sandstorm: Sand buries most of the area
- Day 3: Solar Flare: Flame from extreme sunlight reduces vision, astronaut's backpack is burnt, preventing him from doing super front flip
- Day 4: Frozen Disaster: Wind that constantly pushing the astronaut backwards
- Day 5: Solar Eclipse : The world turns dark, the astronaut has to use flashlight to navigate
- Day 6: Asteroid Disaster: Asteroid destroys the home spacecraft.
- Day 7: Earthquake: Extreme earthquake. Astronaut has to act fast before the ground bury everything.

Example Run:

- First day disaster requires 0 Food, 0 Energy, 1 Oxygen: So you can visit any trio of objects that can give you at least 1 point of Oxygen. Example: Visiting Type 1, Type 2, Type 2 objects gives 1 Food, 3 Energy, 2 Oxygen. (9 combinations that work)

Explanation of Difficulty:

- Each day disaster requires different threshold amounts to reflect increasing difficulty basing on probability.

- Specifically, the number of ways of choosing unique trios of objects of the three types is 10. {(type1, type1, type1); (type1, type2, type2); …. (type1,type2, type3)}
- Only 9 combinations work for first day threshold, 8 for second day, 5 for third day, 6 for fourth day, 3 for fifth day, 2 for sixth day, and 1 for last day.

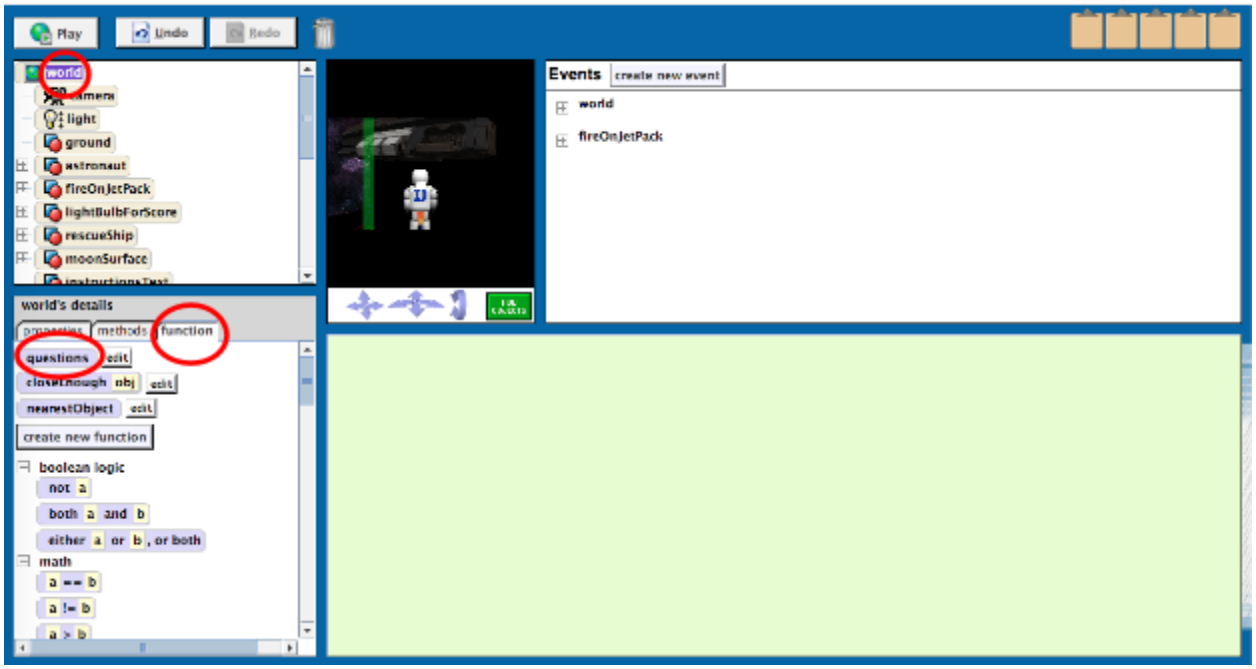
Commands:

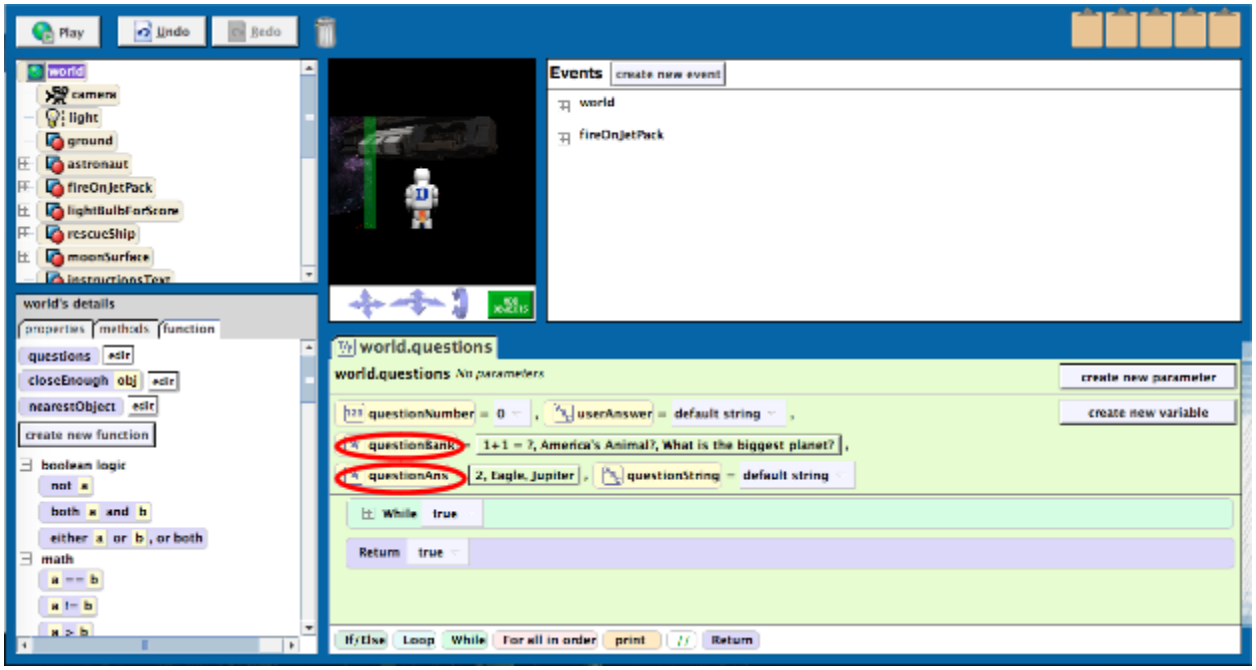
- Move around by arrow keys and fly up and down by W, S
- Space bar for an astronaut super frontflip
- H to switch camera to home spacecraft and check supplies points.
- E to take the challenge when the astronaut is near an object
- I to show instruction board
- Q to skip the dialogue in the beginning

For teachers:

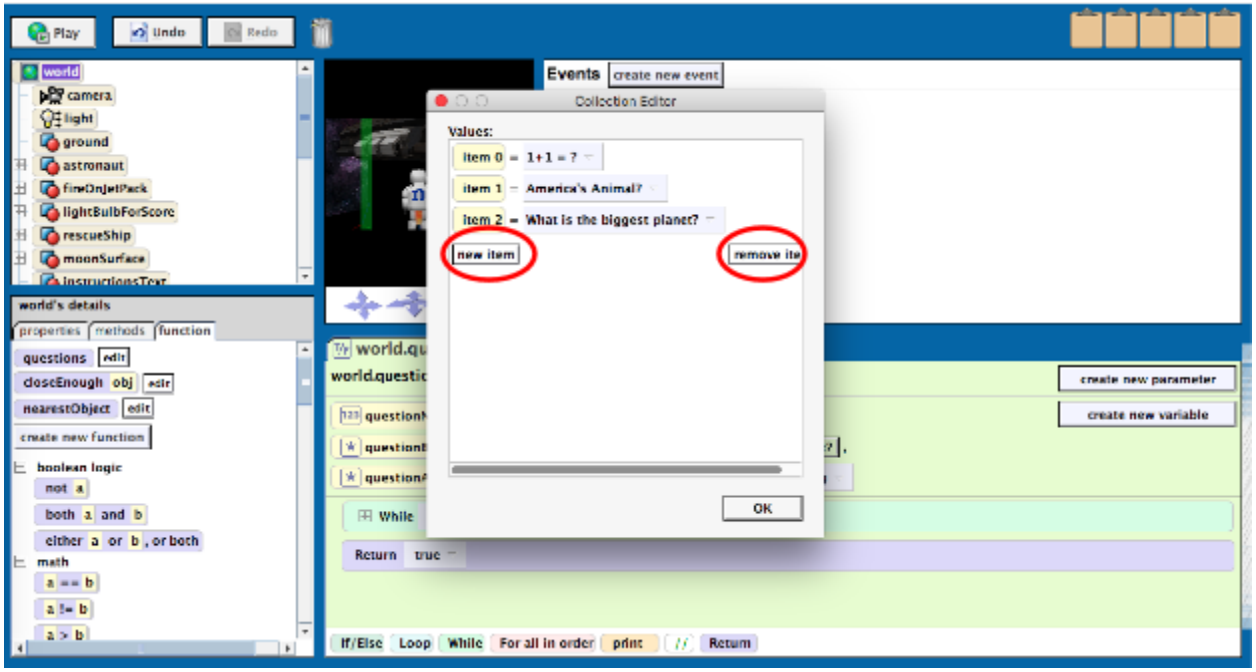
How to modify the set of questions and answers (add, delete)

- Click on the “function” tab of world object and edit the “questions” function.





- **questionBank** is the list of quiz questions you can modify. **You have to insert at least 21 questions.**
- **questionAns** is the list of answers to the quiz questions. The order of the questions in the questionBank list correspond to that of their answers in the questionAns list. For example, see the figure above: the question “America’s Animal?” corresponds to the answer “Eagle.” Both are item 1 in their respective lists (since the items are numbered starting at 0; see the figure below).
    - When you download the game, the filler questions and answers are numbers. For example, item 5 in questionBank is 5, and item 5 in questionAns is 5. In other words, when the game asks you the question “5”, the correct answer is “5”.
- Be aware that the students’ answers (string inputs) must match exactly with the answers you put in questionAns. Thus, if you are using multiple choice, **be sure to tell your students whether the letter should be lowercase or capitalized.**



- Click on the boxes next to questionBank and questionAns, and Alice will show a Collection Editor where you can add “new item” and “remove item” in the lists. Make sure the orders of questions and answers in their respective lists match.

- If you want to change the structure and graphics of the game, you can either modify directly into the code (which might take some time) or send us info of the change and we will try to implement it.