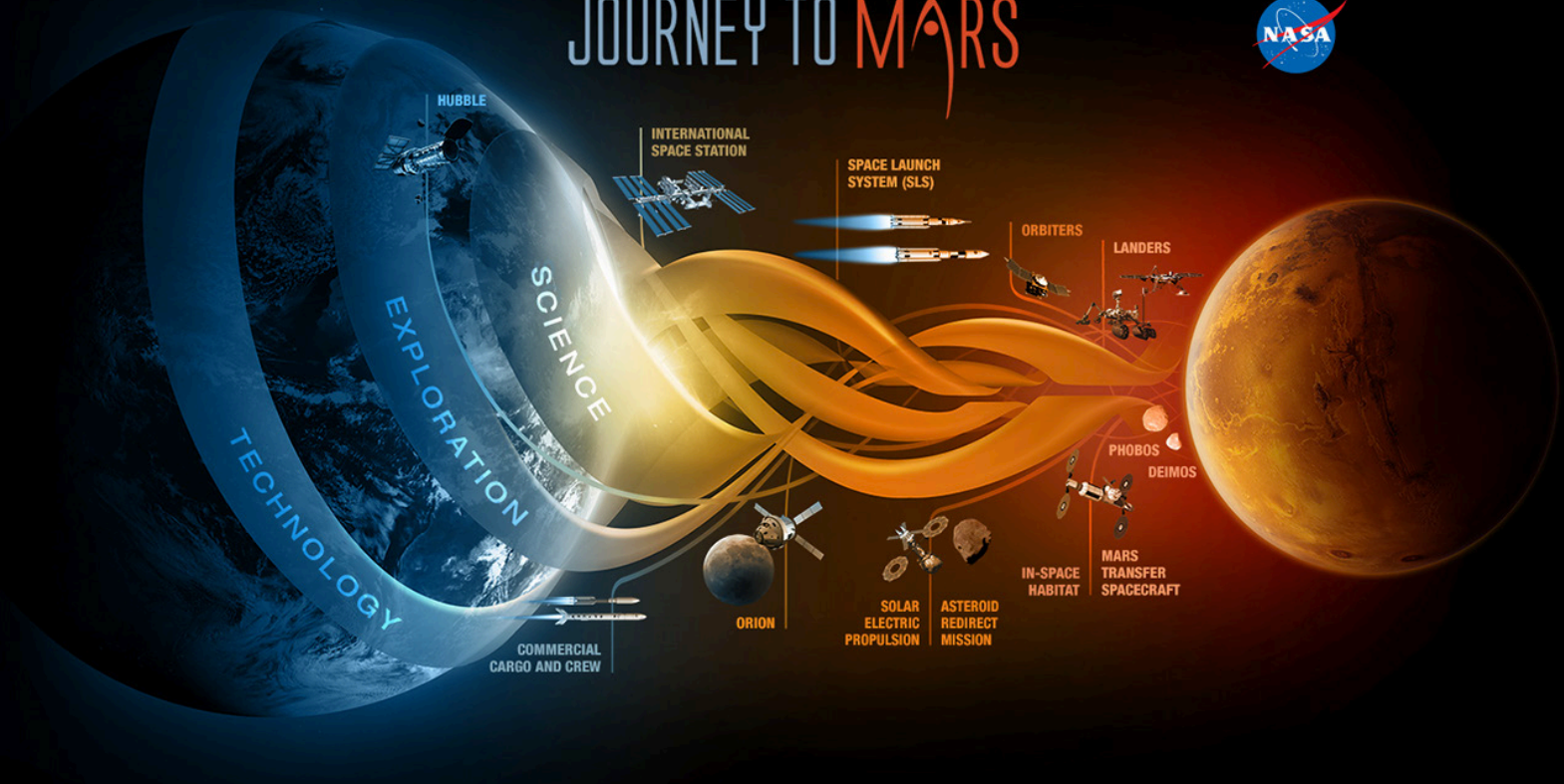


JOURNEY TO MARS



LESSON PLAN

lesson one

Introduction: Background to sending a mission to set up a colony on Mars.

[5 min]

What are the different parts of a mission to set up a colony on Mars that we would need to prepare for? In groups, brainstorm a list of the kinds of science problems that we would need to solve in order to send people to Mars and have them able to live there successfully.

[10 min]

Based on the feedback from the class/suggestions to groups during the preparation time, isolate a few themes:

1. What kind of ship would we need to get to Mars?
2. How would we propel the ship that far?
3. What kind of base would we build on Mars?
4. How would we eat, drink and breathe on Mars

Divide the class into four groups. Each group receives a project pack for one of these four challenges. Explain that each group is going to work to propose a solution to the problem in their pack (one of the four above). In the next lesson, they will then report back on their proposed solution, and tell the other science teams how they would solve their part of the problem.

[5 min]

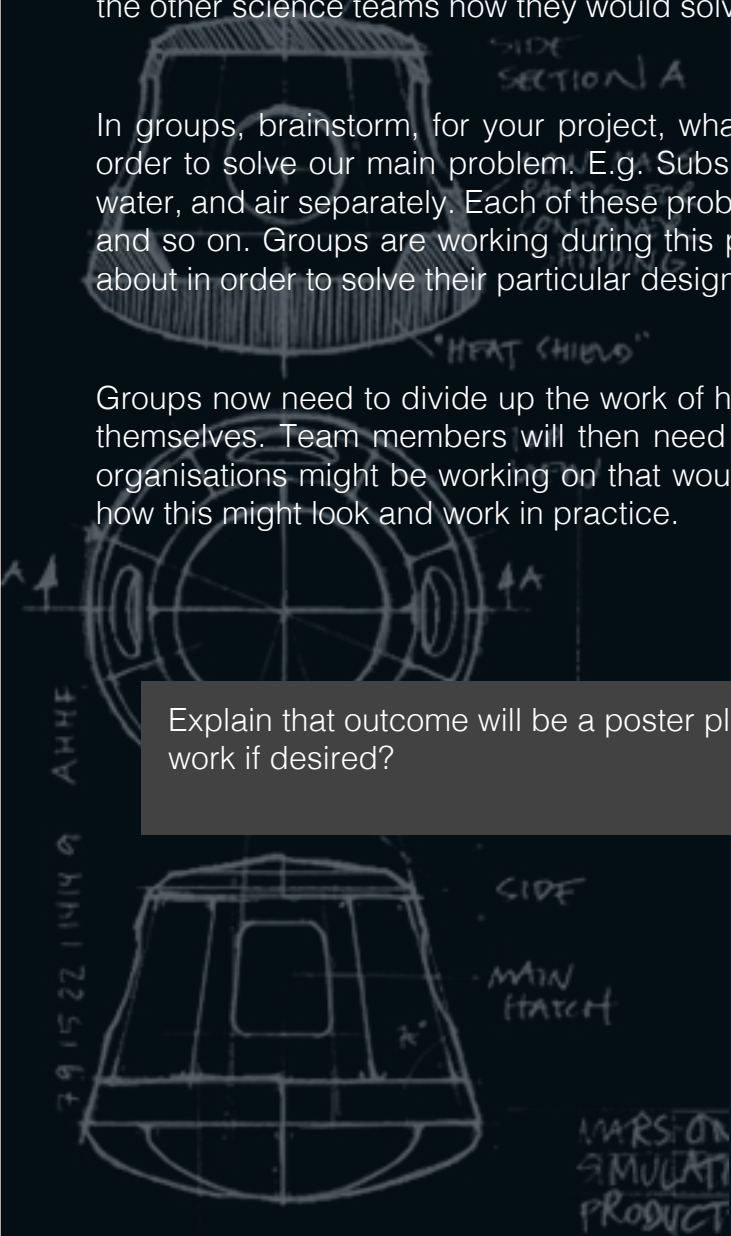
In groups, brainstorm, for your project, what kinds of sub-questions we would need to solve in order to solve our main problem. E.g. Subsistence team will need to solve the problem of food, water, and air separately. Each of these problems might then have other problems related to them, and so on. Groups are working during this period to try and decide what they will need to know about in order to solve their particular design problems.

[20 min]

Groups now need to divide up the work of how to solve the various problems they have amongst themselves. Team members will then need to research what kinds of science NASA and other organisations might be working on that would allow them to solve the issue they are facing, and how this might look and work in practice.

[10 min]

Explain that outcome will be a poster plus presentation, that they can work on as homework if desired?



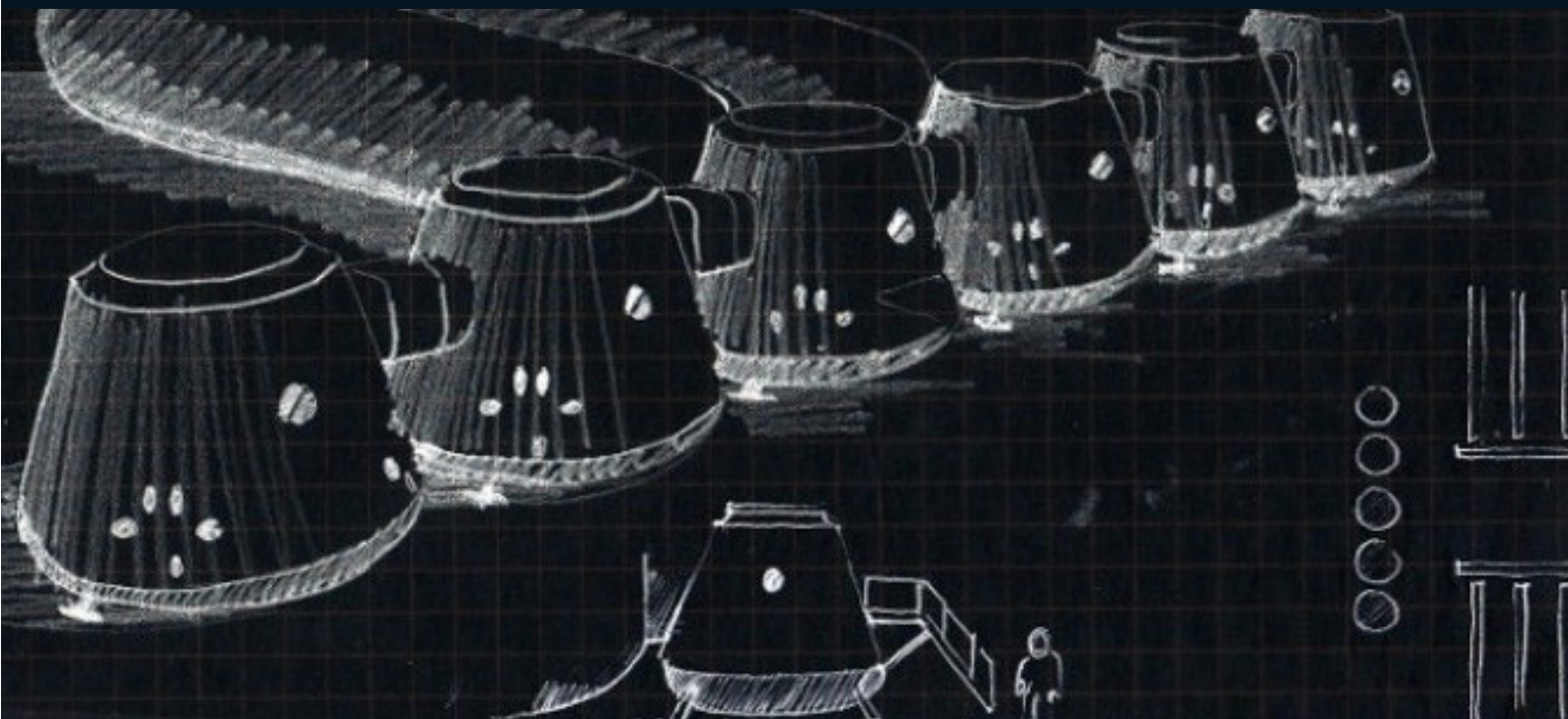
lesson two

Using the research that they gathered as homework, project teams work on creating a diagram of their proposed solution, as well as a presentation to the other project teams to explain their proposed solution and answering any questions that they have.

[20 min]

Representatives from each project team present, and the whole team fields questions on their proposed solution.

[6 min X 4]



lesson three [optional]

If another class has done the Mars Mission lesson pack, and has different-enough solutions, then the two classes can share project teams, with teams 1&2 swapping with teams 3&4 in the other class, so that there are duplicates of identical project teams in the same lesson (e.g. 1/1 & 2/2 or 3/3 & 4/4).

Each pair of teams then takes a turn to present their solution, and argue why it is superior to the other science team's solution. After presenting, a project team will take questions/critiques from the other project team for a few minutes.

[20 min per debate]

At the end of the debates, the whole class votes via secret ballot for the solutions they prefer, and these are totalled up to determine the winning solutions for the mission to mars.

[6 min X 4]

