ROYAL OBSERVATORY GREENWICH

Ted asks: How do you build a rocket?

Key Stage 1

Topics covered: Material properties, teamwork, parts of a rocket

Teacher notes:

Before you get started with this activity, you will need to watch our video "Ted asks: How do you build a rocket?": https://www.rmg.co.uk/schools-communities/teacher-resources/ted-asks-how-do-you-build-rocket

In the video, Ted and friends found lots of different material types. Some were hard, some were soft, some were heavy, some were light, some were natural and some were artificial. In these activities, children can learn about the parts of a rocket, and different material properties through hands on exploration. The activities can be completed in order, or individually.

ROYAL OBSERVATORY GREENWICH

Activity 1: Build your own rocket – Teacher note

In this activity, children will get hands on by building the basic parts of a rocket. The activity information consists of teachers' instructions to build the rockets.

Activity 2: Material hunt – Teacher note

In this activity, children can explore and sort the material properties of things in their environment. The activity information consists of teachers' instructions to run the activity.

Activity 3: Picture sorting – Teacher note

This is a worksheet to be used as a handout for children to complete on their own. Children will match objects seen in the *Ted Asks* videos with material properties.

Discussion points:

1. What other objects or materials seen in the video are light/heavy, hard/soft, natural/ artificial?
2. Which object was the most difficult to sort?
3. Which object do you think is the lightest/ heaviest, etc.

Activity 4: Rocket material match – Teacher note

This is a worksheet to be used as a handout for children to complete on their own. Children will match material properties to things they see in a picture of astronaut Tim Peake on the International Space Station.

Discussion points:

1. Why do you think these material types have been used?
2. What would you like to bring with you on a rocket, or space station?
3. How long would you like to stay on a rocket for?

ROYAL OBSERVATORY GREENWICH

Activity 1: Build your own rocket

Because skills vary, it's up to you which parts are prepared by a grown-up, and what you leave up to the children.

You will need

- Kitchen roll tubes
- Card
- Crafty bits to decorate with
- Tape/glue

Build Instructions (per rocket)

- Cut out a cardboard circle slightly bigger than the width of the kitchen roll tube. A cup works well to trace around!
- Cut a straight line from the edge of the circle to the middle.
- Fold the circle into a cone shape and stick down where it overlaps. Make sure it is the same size or bigger than the width of the kitchen roll tube.
- Roll up two small pieces of card (about A6 size) and stick down so you have two tubes.

You will now have 3 basic rocket parts. The kitchen roll tube is the **fuselage.** The cardboard cone is the **nose cone**, and the two tubes are the **boosters.**

- Stick the cardboard cone to one end of the kitchen roll tube.
- Stick the two cardboard tubes to each side of the bottom of the kitchen roll tube.

Decorate

Use crafty bits to make sure the rockets are space-ready! Tissue paper can be used as "flames" emerging from the bottom the boosters. Tin foil is a great way to add some realistic metal shine. Get creative!

ROYAL OBSERVATORY GREENWICH

Discussion points:

1. Why do you think the rocket has a pointy top?
2. Where would you like to travel in your rocket?
3. Use the image of the Ariane 6 rocket below to show children the different parts of their rockets compared to a real one. The image of Ariane 6 provided is just one example of a rocket, but lots more can be used if you like!

Image credit: ESA

ROYAL OBSERVATORY GREENWICH

Activity 2: Material hunt

In this activity, children will hunt for real materials with a variety of properties.

- Decide which properties you would like to hunt for. For example: heavy; light; artificial; soft; hard. Write them down on separate pieces of paper and spread them out on a table.
- Give the children about 15 minutes to hunt around for their materials.
- Help the children to put their materials on the correct piece of paper. Try to have something on each piece of paper!

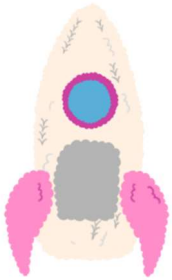
Discussion points:

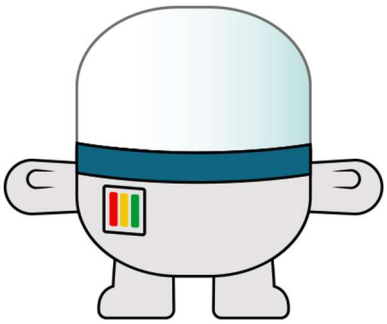
1. Talk about what materials would be good for building a rocket.
2. How can we test material properties? Which ones can you rip? Which ones are hard to pick up?
3. Can you organize the objects in order of lightest to heaviest?
4. What other material properties can the children name? (E.g. wet/dry, opaque/see-through)

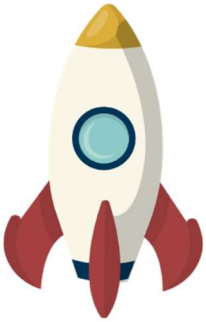
ROYAL OBSERVATORY GREENWICH

Activity 3: Picture sorting

Draw lines connecting the objects with their properties. They will fit into more than one category!







Light

Hard

Natural

Soft

Artificial

Heavy

ROYAL OBSERVATORY GREENWICH

Activity 4: Rocket material match

Look at this image of astronaut Tim Peake inside the International Space Station. Can you spot different kinds of materials here?

Draw lines connecting the **properties** to the **materials**.

Strong **Shiny** **Soft**

Colourful **Hard** **Dull** **See-through**

Image credit: ESA