

Design and Technology

Rockets



Overall Learning Objective:

We are learning to investigate, design, make and evaluate a rocket that can fly, over a number of weeks.

Thursday 28th January

Learning Objective

Today we are learning to investigate what makes a good rocket.

Success Criteria

I will be successful if:

- I can say what the purpose of a rocket is.
- I can identify the features of a good rocket.
- I can investigate existing rocket designs for e.g. size and shape, materials, colour etc.

What is the purpose of a rocket?

Rockets are devices that produce the force, or push, needed to move an object forward.

- Rockets are used to launch satellites into space.
- They are used to launch space shuttles with people on board.
- Rockets can also be used for fireworks, weaponry and ejection seats!



How do rockets work?

-Rockets burn fuel. Most rocket engines turn the fuel into hot gas. The engine pushes the gas out its back. The gas makes the rocket move forward.

-A rocket is different from a jet engine. A jet engine needs air to work. A rocket engine doesn't need air. A rocket engine works in space, where there is no air.

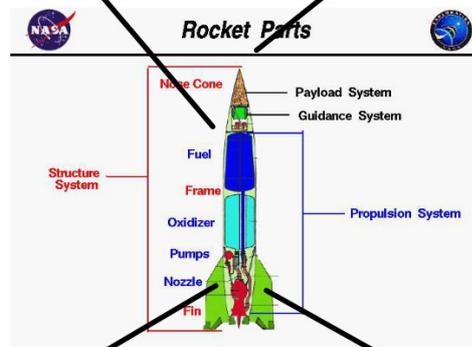
-There are two main types of rocket engines. Some rockets use liquid fuel. Other rockets use solid fuels. On the side of the space shuttle are two white solid rocket boosters. They use solid fuels. Fireworks and model rockets also fly using solid fuels.



What are the features of a good rocket?

Body tube which is long, smooth and cylindrical.

Nose cone which is pointed.



Materials (e.g. aluminium/ titanium) which are strong so the rocket won't fall apart during launch and light so the rocket can take off from the ground and fly!

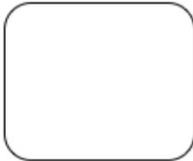
Exhaust which will allow spent fuel to escape.

Fins which are flat and thin.

These features make a rocket **AERODYNAMIC** (e.g. so it is able to launch off the ground and travel easily and quickly through the air/space with minimum resistance pushing it back.)

Investigating Rockets

Design and Make a Rocket
Investigating Rocket Designs



Choose an existing rocket.

Function

Does it have a pointed nose cone?

Does it have fins which are flat and thin?

Is the body tube long, smooth and cylindrical?

Size and Shape

Is the size of the rocket suitable and why?

Is the shape of the rocket suitable and why?

Construction

Is it constructed well?

Materials

Which materials have been used?

Are the materials suitable and why? (are they light and strong?)

Colour

Is the colour appropriate?

Aesthetics

Does it look appealing and why?

What do you like or dislike about this rocket?
