

Teabag Rocket

Questions to consider:

- What do you think will happen to the teabag when it is lit?
- What if you light the bottom of the bag instead of the top? Use a lighter with a long handle to ignite closer to the bottom of the tea bag. Does the rocket still work? Why/why not?
- Try different types of teabags. Do they all work the same or do some burn quicker?
- Is it possible to do this with tissue paper?
- Is this possible to do with a roll of standard paper?



You will need:

- Teabag with a string and label
- Non-flammable plate
- Scissors
- Lighter or match

Method:

1. Remove the staple, label and string from the teabag.
2. Pour the tea out of the teabag.
3. Unfold the teabag.
4. Turn the teabag into a cylinder - make sure there's a space in the centre. You can use your finger if that helps.
5. Stand the cylinder on one end on a plate. Make sure it's on a flat surface.
6. Use a lighter or match to set the top of the teabag cylinder on fire.

English activities:

- Write a set of instructions for the experiment.
- Write an explanation of what happens and why
- Write a paragraph to describe the process.



Maths activities:

- Complete the experiment a few times and measure the approximate height of the rocket using a ruler.
- Convert between units of measure. E.G. cm and mm
- Create a frequency table of the different heights recorded
- Create a bar chart to show the range of heights.

The science explained:

Lighting the top of the teabag cylinder heats the air inside the cylinder. The air molecules start to move more quickly and spread out to take up more space. As the air molecules spread out, the air inside the cylinder becomes less dense. Warm, less dense air rises above cool, dense air. The ash of the teabag is light and doesn't require much force to lift it. As the warm, less dense air rises, it has enough force to lift the ash of the teabag.

Hot air balloons use a similar principle. The burner beneath the balloon heats the air inside the balloon. The less dense, heated air in the balloon rises above the denser, cooler air around the balloon and the balloon flies.