



THE
HOLGATE
— ACADEMY —



Part of
**Diverse
Academies**

Guidance for teachers and parents

The activities on the following pages are designed to give year 6 students a taste of some of the topics they will be studying in their science lessons in year 7.

Hopefully they're self-explanatory so students will be able to work through them independently. The tasks can be completed in any order. The chemistry activity does require internet access to one website.

Many thanks for your help and support.

Alice Driscoll

Get ready for biology!

We're really looking forward to meeting you in person, but until then, we thought you might like to have a go at a few science activities. You can do them in any order; they're designed to give you a taste of some of the topics we will study.



The human heart

Answer these questions using what you know about the human heart.

Where is the heart found in your body? _____

What does the heart do? _____

Your pulse measures how many times your heart beats in one minute. Your pulse goes up when you exercise.

- Record your pulse when you are resting, and fill in the table.
- Now jog on the spot or do star jumps for two minutes.
- Measure your pulse again and fill in the table.

Resting pulse (beats per minute)	Pulse after exercise (beats per minute)

What is the effect of exercise on your pulse rate?

Can you find out which animal has the largest heart?



Healthy eating

Find three different food or drink labels of your choice. It could be from a crisp packet, a chocolate bar or a tin of beans!

Look for the nutritional information on the wrappers or bottles. Use them to help you complete the table

Name of food or drink	Carbohydrates (per 100 g)	Fats (per 100 g)	Protein (per 100 g)

Which of the foods or drinks is the healthiest? Explain why you chose that one.

Get ready for chemistry!

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Birthday chemistry

Every day, scientists do investigations and make observations to answer questions in chemistry. These scientists are called chemists. Chemists work out why materials have certain properties. They find out how materials change in chemical reactions. They create new materials, with perfect properties for particular purposes.

What to do

1. Go to this website:
<http://www.rsc.org/learnchemistry/collections/chemistry-calendar>
2. Click on your birthday.
3. Fill in the form to show others in your new class why your birthday is important in chemistry.

Hints

- Fill in the form in your own words.
- If there is a word you don't understand, ask someone for help, or look it up in a dictionary or on the internet.
- You can draw a picture or find one on the internet, print it out, and stick it on the form.

Why is my birthday important in chemistry?

Name: _____

My birthday is on: _____

The name of my chemist is: _____

My chemist is from this country: _____

This is what my chemist did:

Here is a picture of my chemist, or of something my chemist discovered.

Get ready for physics!

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Make it fly!

A paper aeroplane, glider or a helicopter falls to the ground much more slowly and more gracefully than a scrunched-up piece of paper. It's all thanks to the forces generated by air pressing on an moving over the surface of the paper.

What's the science?

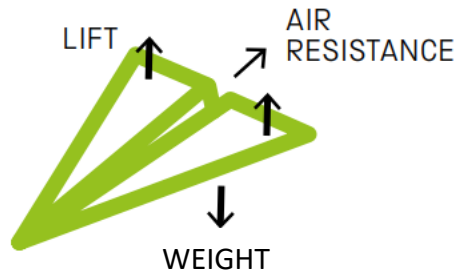
Gravity pulls everything downwards. But as they move towards the ground, the wings of the aeroplane, the wings of the glider and the blades of the helicopter create higher air pressure underneath than on top. This creates a lift force that counteracts some of gravity's pull and makes them fall more slowly. Moving through air also creates a kind of friction called air resistance, or 'drag', which tends to slow down anything moving through the air.

Science in your world

Real aeroplanes create lift in the same way as paper gliders, but they have powerful engines that push them through the air, so the lift is generated continuously.

Did you know...?

In December 2010 a paper aeroplane thrown by Takuo Toda in Hiroshima, Japan, stayed in the air for 29.2 seconds – a world record.



What should I do?

Follow the instructions on the next page to help you create your flying objects. Have a think about the questions below as you go.

Think and talk about...

- Which design travels fastest and why do you think this is?
- Why do these designs behave differently to a scrunched-up piece of paper?
- How do your paper planes compare with the shapes of real planes you've seen?

Investigate...

- Which way does the helicopter spin? Can you make it spin the other way?
- What do you notice if you make the front of the plane heavier?

CHALLENGE

- Make your own plane design and see if you can make it travel further than the others.

Flying objects instructions

Follow the instructions on this page to make your three flying objects.

The template for the helicopter is on the next page. This piece of paper is perfect for your aeroplane and please don't worry if you can't make the glider.

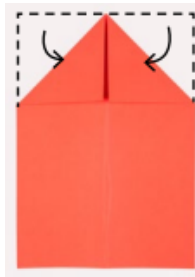


1



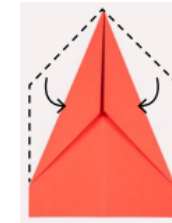
Take the A4 sheet of paper. Fold it in half, as shown, then unfold it.

2



Fold the two top corners in to make a point.

3



Now fold the edges in again so they meet in the middle from the tip.

4



Fold the plane in half again.

5



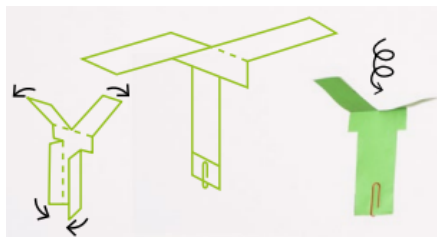
Now fold the diagonal edge down to meet the straight edge on each side, making the wings. Your plane is complete.

6



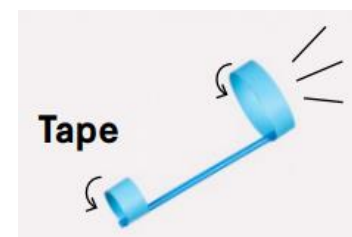
Test out your paper plane!

7



Use the template on the following page and the diagram above to help you make a paper helicopter, and then drop it to see it spin.

8



Curl the strips of paper into loops and tape them to each end of a straw to make a glider.

