



ST JAMES'
CATHOLIC HIGH SCHOOL

Getting ready for Science

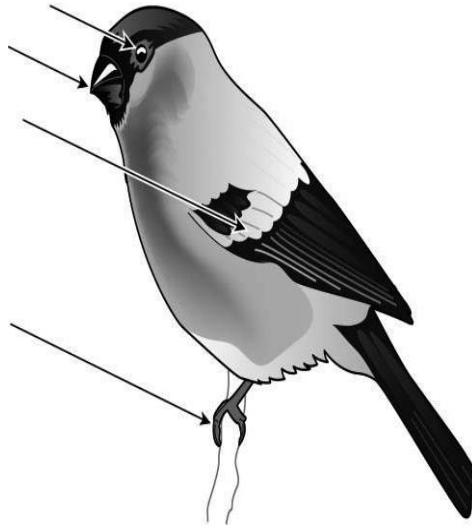
Science looks at many different aspects of what is around us. It can be broken up into three areas: Biology is the study of living organisms which include plants and animals. Chemistry focuses on what objects are made up of and their properties and reactions. Finally, Physics looks at the nature and properties of matter and energy and how these relate to the everyday world.

The following tasks are designed for you to gather data and answer questions about the world around you and will be looked at when you join us in September.

Special features of birds

In a local park, choose a bird to watch closely.

- Label the parts of the bird's body on the diagram.
- Why do you think the bird needs wings?
.....
- Why does it have claws?
.....
- Why does the bird have feathers?
.....



Parts of a leaf

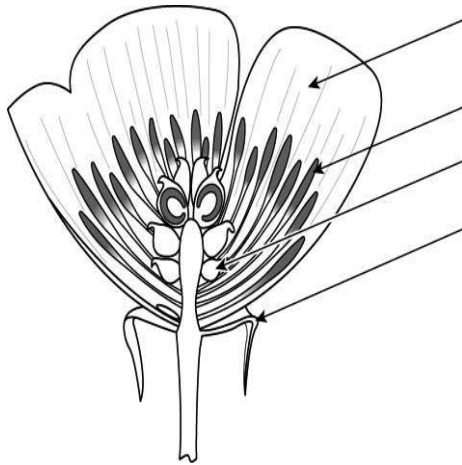
On a visit to a park or on a walk, find a tree and collect a leaf. Use books or the Internet to identify the tree from the leaf.

In the space below, draw the leaf and label as many parts as you can.



Parts of a flower

Label this diagram of a buttercup flower, which has been cut in half.



Local wildlife

Think about the living things that you might find in your garden, or in a local park. List as many organisms from your area as you can.

Divide the list into producers, herbivores, and carnivores.

Producers

Herbivores

Carnivores

complete these tasks using what you know about the human body.

Healthy eating

During the summer holiday, find three different chocolate bars of your choice, or three different soft drinks of your choice.

Look for the nutritional on the wrappers or bottles. Fill in the table below with the nutritional information about the bars or drinks.

Name of chocolate bar or soft drink	Carbohydrates (per 100 g)	Fats (per 100 g)	Protein (per 100 g)	Calories

Which of the chocolate bars or drinks is the healthiest? Use your table to help you decide.

.....

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? Use your table to help you decide.

.....

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

- Go to this website:
<https://edu.rsc.org/resources/collections/on-this-day-in-chemistry>
- Click on your birthday.
- 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.

Materials matter

Chemists make materials that are suitable for their purpose. In this activity, you will work out why objects are made from certain materials.

What to do

- Find five objects at home that are made from different materials.
- Fill in the table to show why the objects are made from their materials. The first line is already filled in.

Object	Material the object is made from	Properties of the material that make it suitable for the object
frying pan	metal	<ul style="list-style-type: none">• good conductor of heat• rigid

Sugar or salt?

In this activity you will plan and do an investigation to answer this question: **Can you dissolve more sugar, or more salt, in a glass of water?**

My plan

Complete the table.

Variable	Will I change it or measure it or keep it the same?
substance (sugar or salt)	
amount that dissolves	
volume of water	
temperature of water	

Write down what you will do.

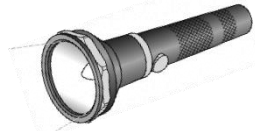
My results

Substance	
Sugar	
Salt	

What I found out

We use physics in lots of areas of our lives. Use what you know about science to help you carry out the tasks below.

Circuits



Can you draw a simple circuit that you would find in a torch? Include these things:

battery bulb switch

The Sun

Check the Sun's position several times in one day and write the changes.

Warning: Never look directly at the Sun!

Time	Height in sky	Position
7 am		
Noon		
4 pm		
9 pm		

The Moon

Watch the moon every night for a week. Write down what it looks like each day. Think about its shape, and brightness.

Day	How the Moon looks
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	
Saturday	
Sunday	

Forces

Some types of force slow us down when we are moving. Fill in the blanks, using the words below:

water resistance air resistance drag

- A force that slows me down when I run is
- A force that slows me down when I swim is
- A force that slows me down when I cycle is

Magnets



List some objects that are magnetic and some that are not.

Magnetic Not magnetic