



SUMMER SCIENCE ACTIVITIES



At Kings' our vision in science is:

"You cannot change the world if you do not first know the world."

We can't wait for you to start in September and begin learning all about our fantastic subject, as well as getting involved in all the practical and extracurricular activities we have on offer!

In the meantime, why don't you get a head start with these fun activities you can complete over the summer holidays? All the activities are optional and can be completed in teams. If you complete I task or all 10, please bring in your answers to show your new science teacher in September. You can even earn your first credit or 2!!

Task 1: Apparatus

In Science, we use lots of equipment that may be new to you.

Create a list of 15 most common pieces of equipment that are used in a school Science Laboratory.

For each piece of equipment on your list can you:

- Find out what it is used for
- Draw its scientific picture

Task 2: Space aliens

- Choose a planet in our solar system
- · Design an alien that could live on this planet
- You will need to research the properties of that planet and design adaptations to help your alien survive
- Create your alien & write a summary, explaining your creation

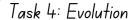
Task 3: Most important scientific discovery

- There have been some amazing scientific discoveries in history - from vaccines to cosmic microwave background radiation
- Research, using the internet, to justify which one you think is the most important scientific discovery in history!
- Write a summary of your justification Type



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Produce a fact sheet about a species that is now extinct.

You should include information on:

- What the species was like and how we know this
- How / why the species went extinct
- What impact this had on the ecosystem

Task 6: Walking water

For this activity you will need:

- Cups
- Water
- Food colouring
- Kitchen towels



Steps:

- 1. Set up your cups (as many as you want) with equal amounts of water.
- 2. Place a few drops of different food colourings in your cups of water
- 3. Place an empty cup in between each full cup
- 4. Place a folded paper towel over each cup watch the magic!

Go further: How does changing the amount of water in each cup affect the speed of water movement between the cups?

Task 5: Laboratory rules



These are the rules that we have in Science:

- 1. Do not enter the lab without permission.
- 2. Dress for practical work (hair tied back and ties tucked in).
- 3. Follow instructions from the person in charge.
- 4. Make sure your working area is safe (bags and coats tucked under benches).
- 5. Never run in the lab.
- 6. Don't eat or drink in the lab.
- 7. Do not taste or sniff chemicals.
- 8. Never leave an unattended Bunsen burner on a blue flame.
- 9. Do not touch the electrical sockets without permission.
- 10. In the case of accidents, tell an adult.

Design an exciting poster - that could be displayed in the Science department - that showcases these rules and why they are important.

Task 7: Diffusion of skittles

For this activity you will need:

- Plate
- Skittles
- Water

Go further: Can you repeat this experiment with warm water?

Steps:

I. Place your skittles in a pattern around the edge of a plate

2. Carefully put some water in the middle of the plate so that it just touches the Skittles





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Task 8: Data collection

In Science we collect lots of data - this data allows us to solve problems and identify patterns.

Can you create a survey to collect data on an area that interests you? Can you spot any patterns or anomalies?

Here are some ideas if you are stuck:

- · Record the average temperature every day in your garden
- · Record the growth of a plant over the summer
- Record how many people are using mobile phones versus not using their phone on a walk
- Record people's opinions collect data on their favourite sport / colour / animal

Task 10: Heart rates



Can you see how different types of exercise affect your heart rate?

For this activity you will need:

- A person who can do mild / moderate exercise
- Stopwatch / clock / timer
- A safe space to exercise in

Task 9: Practical activity 3

For this activity you will need:

- Water in a large bowl
- Pennies, pebbles or weights
- Tin foil

Steps:

- 1. Design and build a number of tin foil boats - try to make different shapes and
- 2. Place your boats onto the water
- 3. Start adding your pennies
- 4. Which boat can hold the most weight?

Remember:

All experiments are safe to do, but you may want to ask for help from an adult if you need it.

Steps:

- I. Record your resting heart rate by measuring your pulse on your wrist or your neck. You could also use a smart watch if you have one.
- 2.Exercise for I minute and record your maximum heart rate
- 3. Rest for a few minutes to allow your heart rate to go back to normal
- 4. Complete a different exercise for I minute and record your maximum heart rate
- 5. Repeat steps with as many different exercises as you want (star jumps, running, push ups, sit-ups, burpees etc ...)
- 6. Which exercise makes your heart rate increase the most?



Go further: Can you repeat this experiment on different people?