Mercury

Size (diameter):	4879.4km
Moons:	0
Distance from Sun:	53.29 million km
Length of year:	88 days
Length of day:	58 days 15 hours 30 minutes
Temperature:	-173°C to 427°C
Atmosphere:	
hydrogen, helium, oxygen, sodium and potassium	

Venus

Size (diameter):	12 104km
Moons:	0
Distance from Sun:	107.48 million km
Length of year:	225 days
Length of day:	116 days 18 hours 0 minutes
Temperature:	around 470°C
Atmosphere:	
carbon dioxide (96.5%), nitrogen and sulphur dioxide	

Earth

Size (diameter):	12 742km
Moons:	1
Distance from Sun:	151.75 million km
Length of year:	365 days
Length of day:	24 hours
Temperature:	between -88°C and 58°C

Atmosphere:	
Nitrogen	78.08%
Oxygen	20.95%
Argon	0.93%
Carbon dioxide	0.04%

Mars

Size (diameter):	6791km
Moons:	2 (Phobos and Deimos)
Distance from Sun:	227.9 million km
Length of year:	687 days
Length of day:	1 day 0 hours 37 minutes
Temperature:	between -140°C and 20°C
Atmosphere:	
Oxygen: 0.13%, CO_2: 95.32% CO: 0.08%, N: 2.7%, Ar: 1.6%	

Jupiter

Size (diameter):	139 822km
Moons:	79
Distance from Sun:	778.89 million km
Length of year:	12 years
Length of day:	9 hours 56 minutes
Temperature:	about -145°C

Atmosphere:

This planet is made up mostly of gas. Almost the entire planet is made up of hydrogen and helium, with traces of ammonia, sulphur and water vapour.

Saturn

Size (diameter):	116 464km
Moons:	82
Distance from Sun:	1.5 billion km
Length of year:	29 years
Length of day:	10 hours 42 minutes
Temperature:	between -185°C and -122°C

Atmosphere:

This planet is made up mostly of gas. Almost the entire planet is made up of hydrogen (~75%), helium (~25%) and traces of methane and water.

Uranus

Size (diameter):	50 724km
Moons:	27 (Titania, Oberon, Miranda, Ariel, Umbriel, etc.)
Distance from Sun:	2.94 billion km
Length of year:	84 years
Length of day:	17 hours 14 minutes
Temperature:	around -224°C

Atmosphere:

This planet is made up mostly of gas. Almost the entire planet is made up of hydrogen and helium, with traces of ammonia, water and methane.

Neptune

Size (diameter):	49 244 km
Moons:	13 confirmed, 1 provisional
Distance from Sun:	4.48 billion km
Length of year:	165 years
Length of day:	16 hours 6 minutes
Temperature:	around -210°C

Atmosphere:

This planet is made up mostly of gas. Almost the entire planet is made up of hydrogen, helium and methane.

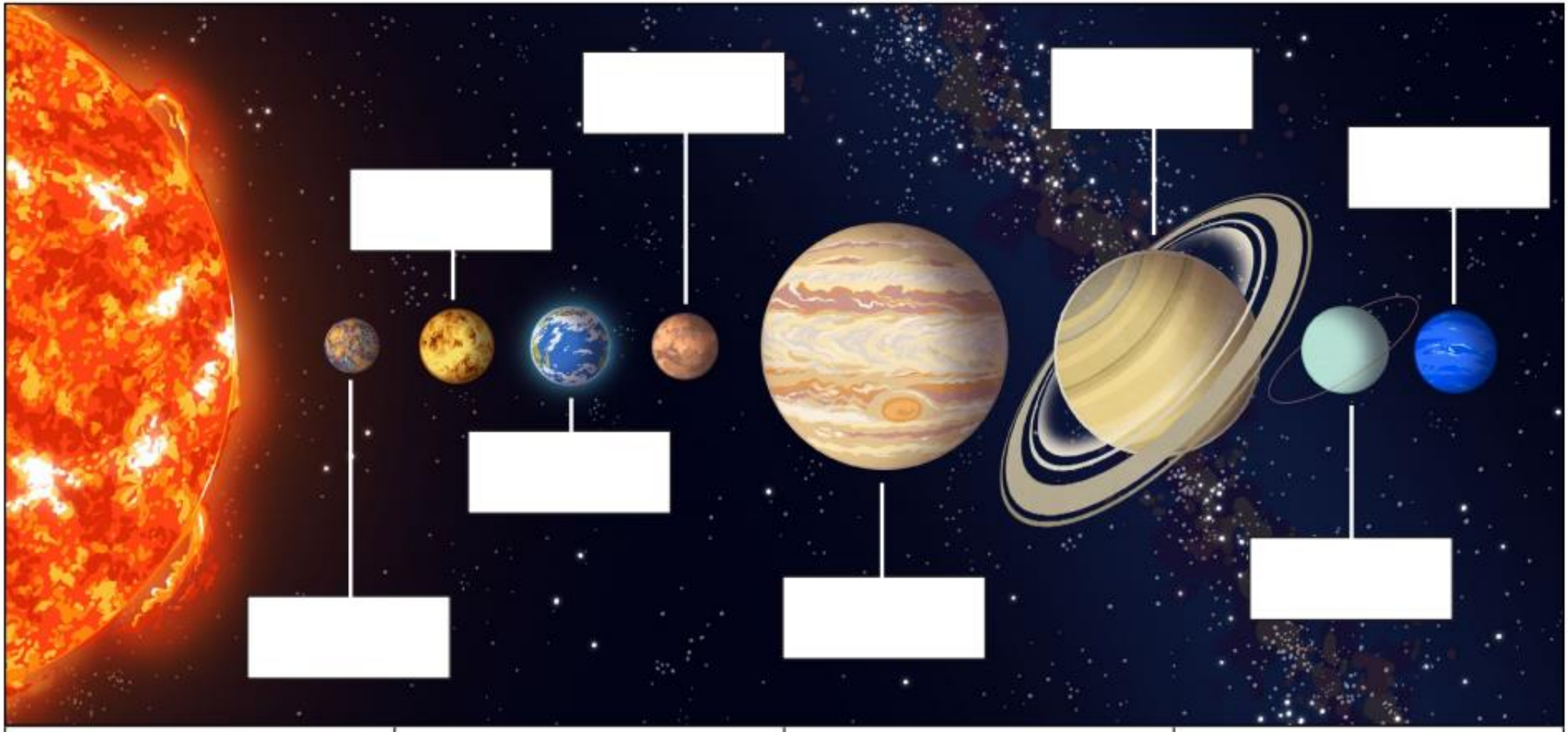
Solar System Fact Hunt

Use books, the Internet or the Solar System Fact Cards to find the answers to the following questions.

Which planet orbits closest to the Sun?	Which planet has the highest maximum temperature?
Which planet's atmosphere contains the highest percentage of carbon dioxide?	How much bigger is Earth than Mars?
Which planet has the shortest day?	Which planets are made of gas?
Which planet has the most moons?	What is the Earth's atmosphere made mostly of?

The Solar System

Use the word bank provided to label the parts of the solar system.



Mars	**Earth**	**Neptune**	**Saturn**
Jupiter	**Uranus**	**Mercury**	**Venus**

Powered Orbit

Mars Landing

Standing Ready

Rocket #25

Rocket Race

Rocket #35

Rocket #17

Rocket #51

Ultra Deep Space — NASA, Hubble Telescope

Make Papier-Mache Planets

Mix science and art by making these great papier maché planets.

What you will need:

- Lots of Newspaper
- white glue
- Water
- Bowl (for the watery glue)
- 1 balloon per planet to be made
- Paints and paintbrushes once they are dry
- Scissors
- Table covers and aprons/old shirts to wear
- If you are making a planet with rings, then you will need some cardboard and masking tape too.

Instructions:

1. Cover your work surface with newspaper or a protective cover and yourself with an old shirt or an apron – this is going to get messy!
2. In a bowl, mix glue with water so it is the consistency of runny yoghurt.
3. Cut the newspaper into strips roughly around 5cm x 10cm as a guide – they don't need to be accurate.
4. Blow up a balloon to the size that you want your planet and tie the end.
5. Now cover your balloon in a first layer of papier-mache by dipping a piece of paper into the watery glue mix, wiping off the excess mixture and then laying onto your balloon. Make sure that the pieces of paper overlap and you only put the first two layers on.
6. Leave to dry
7. Repeat steps 5 and 6 until you are happy with your planet structure and leave to dry. The more layers you put on, the sturdier your planet will be.
8. If you are making Saturn or Uranus, you will want to add a ring to your structure. Do this by cutting out a large circle of card the size of the outside of the rings (you can tape smaller pieces together). Now cut a hole in the middle, so that your papier-mache balloon slots inside. Use masking tape to attach the ring to the planet and then cover the ring in two layers of papier-mache. (Don't do too many layers or it will be too heavy.)
9. When fully dry, use the scissors to cut the tail of the balloon off so it deflates and you can remove it from the middle, leaving your perfect, papier-mache planet.

10. Paint your planet. You may want to start with a base layer and you may need to do research if you want an accurate representation of a particular planet.

Alternatives:

- Use a different material for the ring of Saturn and Uranus such as foam, wire or bubble wrap.
- Why not make a Sun and Moon too?
- Hang them in order with string from a ceiling orbiting a large Sun.
- Try to blow up the balloons so that you get an idea of which planets are bigger than others.
- Could you use this method to make hemispheres to demonstrate the phases of the moon?
- Why not imagine and create your own planets?

Make an Air Powered Rocket

This activity is suitable for outdoor use. Please make sure you have a suitable area of space to work within and that the correct risk assessments are completed.

What you will need:

- A 2-litre water bottle.
- Suitable craft resources to make your bottle into a rocket.
- A cork (this needs to be pre-cut by an adult to ensure the needle will be able to go all the way through it).
- An air pump with a needle adapter (e.g. bicycle or football pump)
- A launch pad (e.g. a garden fork) to place your bottle on in preparation for launch.

Instructions:

1. Decorate your bottle to turn it into a rocket. It is a good idea to put fins on either side.
2. Push the cork into the neck of the bottle.
3. Pierce the cork with the needle adapter, ensuring the needle comes through on the other side.
4. Place the bottle onto the launch pad, bottle neck down.
5. Attach the pump to the needle adapter and begin to pump air into the bottle.
6. When the rocket bottle is full of air, it will launch into the sky.

Extension Activities:

- Can you find a way of measuring how high your bottle launches into the sky? Can you make it go higher?
- Fill your bottle with different amounts of water before pumping it full of air. What happens when it launches?

Star Biscuits

Ingredients

100g butter

50g caster sugar

175g plain flour

A few drops of vanilla extract

Equipment

Bowl

Spoon

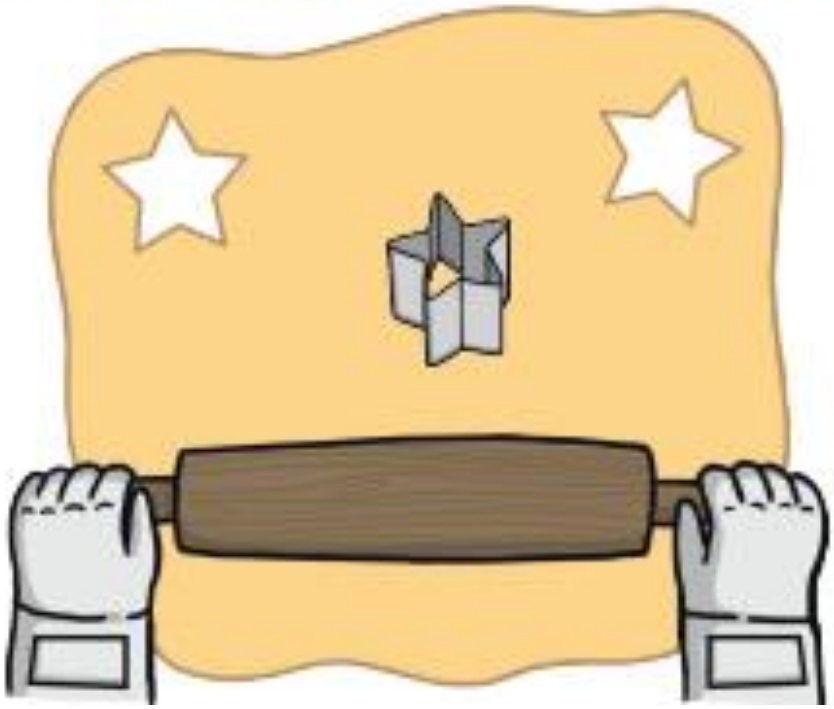
Rolling pin

Star cookie cutter

Baking tray

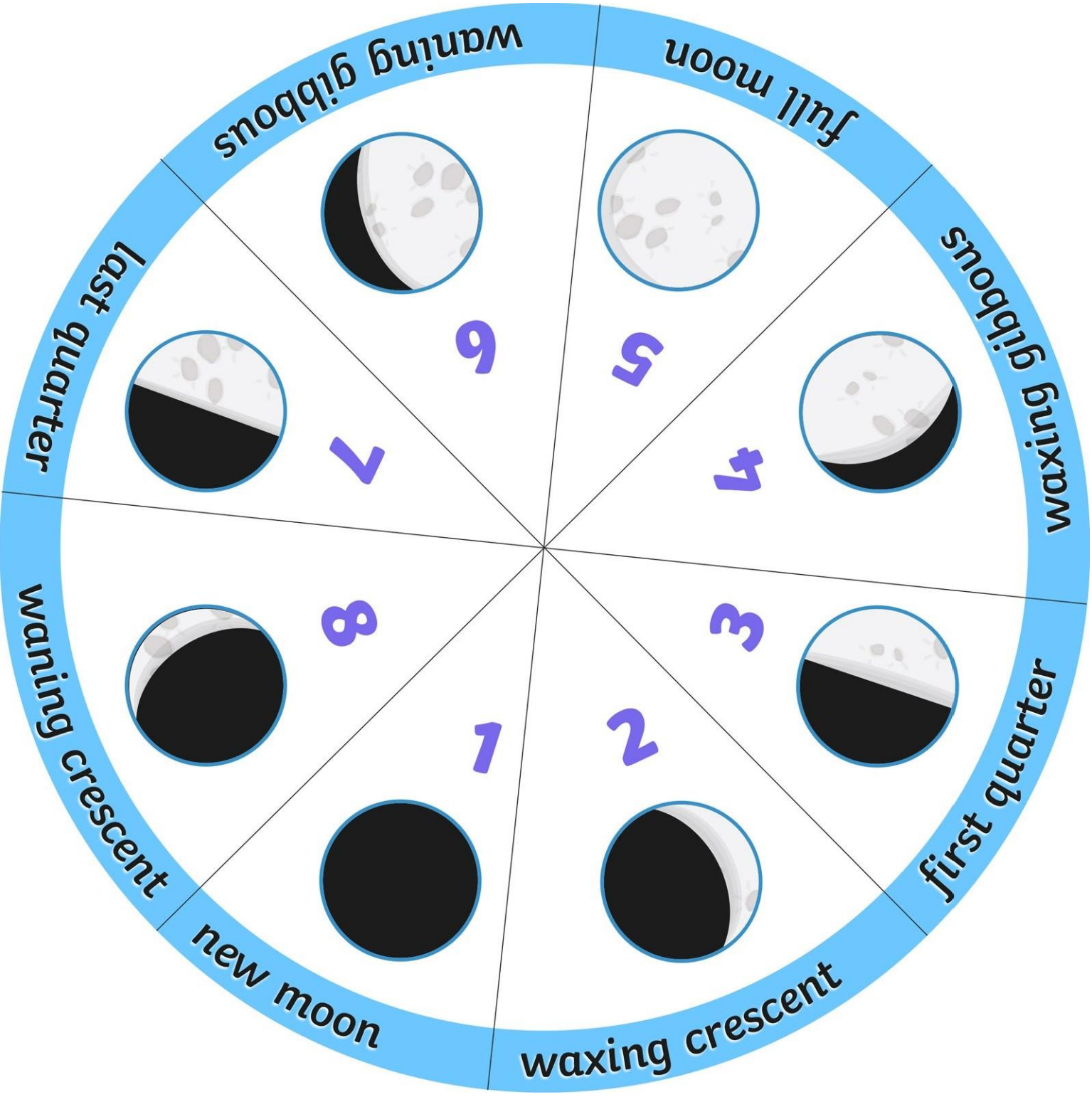
Method

1. Preheat the oven to 150°C.
2. Add butter and sugar in a bowl and mix well until light and fluffy.
3. Add the vanilla, mix, then add the flour and mix well.
4. Roll out to about 5mm thick. Cut into star shapes.
5. Bake for 25 minutes or until golden brown.



Northern Hemisphere Moon Phases Spinner

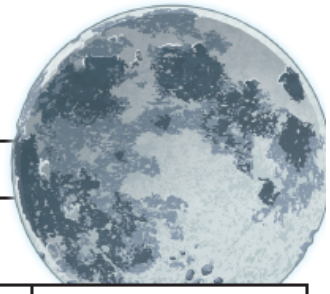
Cut out the discs and use a split pin to join in the middle.



Northern Hemisphere Moon Phases Spinner

Cut out the discs and use a split pin to join in the middle.

My Moon Diary



Time at which the Moon is checked each night:	Month of diary commencement:

Shade the circle so that the section of the Moon that is illuminated remains. Draw clouds over it if you can't see it!

Date:_____	Date:_____	Date:_____	Date:_____	Date:_____	Date:_____	Date:_____
Date:_____	Date:_____	Date:_____	Date:_____	Date:_____	Date:_____	Date:_____
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