Ages 7-11

Worksheet 1 / Planet Pavilion

JODRELL BANK

CENTRE FOR ENGAGEMENT

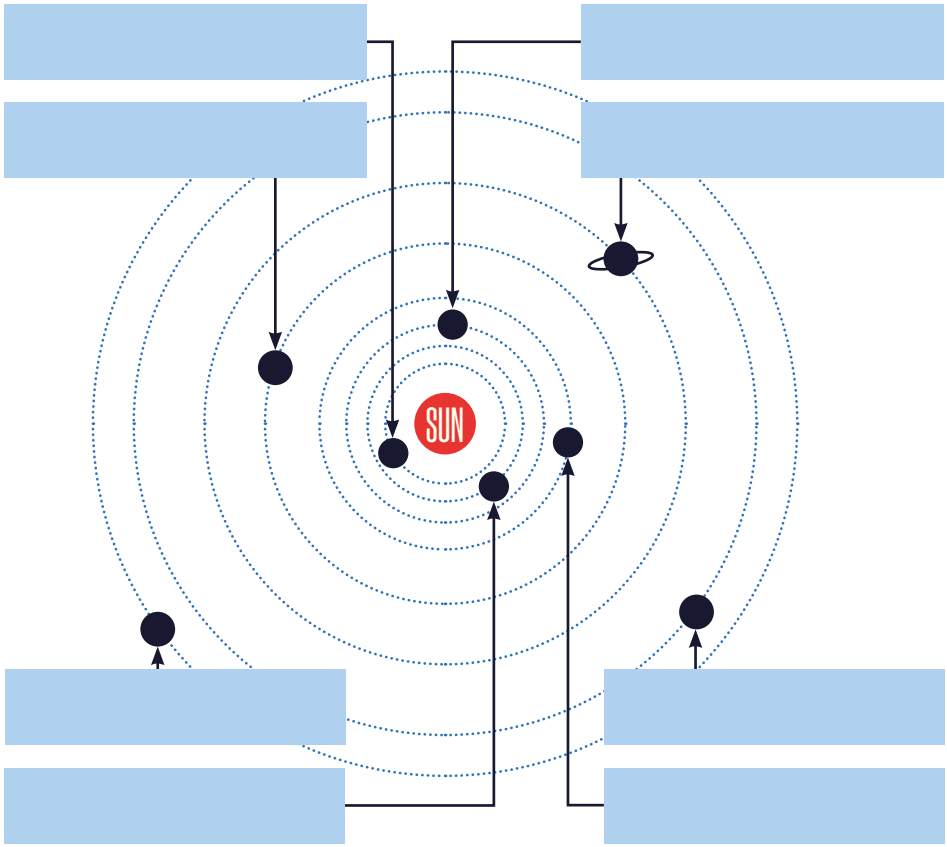
Welcome to the Planet Pavilion – here are some questions to answer!

Look up! In the ceiling is a clockwork model of the **Solar System**

This type of model is called an ***orrery***. Turn the handle to make it move! The planets in our orrery move **much faster** than the planets in real life!

1 minute in the orrery = 1 year in real life

1. Use the orrery to help label each of the planets below...



2. **How many planets** are there in the Solar System?

3. Which planet is orbiting the Sun **the quickest**?

4. Which planet is orbiting the Sun **the slowest**?

Did you know?
In the real Solar System you could fit the **Earth** inside the **Sun** more than one million times!

5. Look at the orrery and think about the fact above. Do you think that our orrery shows the Solar System **to scale**?

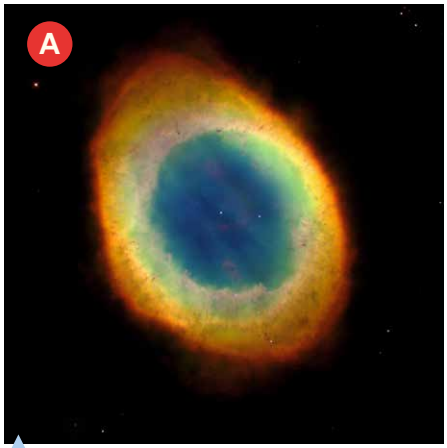
yes **no**

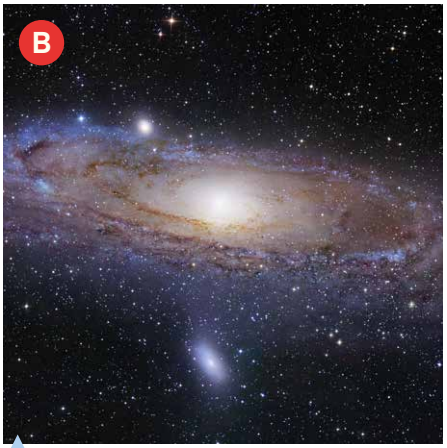
(To scale means that things are shown in the correct sizes when compared to each other)

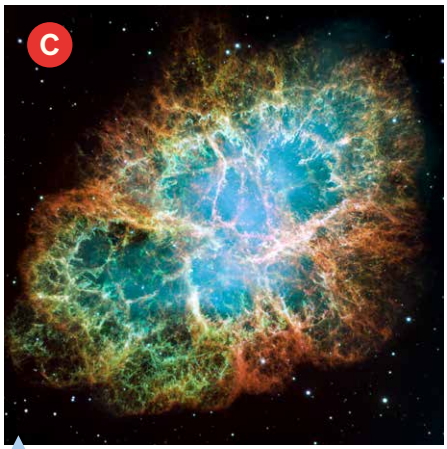
Worksheet 2 / Planet Pavilion

Now look around the walls at the **space pictures**

6. Search for the objects below and **write down their names**.







7. Object B above is the nearest large spiral galaxy to our own.
What is the name of **our own galaxy**?

8. Object C above is the leftovers of a giant star that exploded.
In what **year** did people see it explode?

9. The **Orion nebula** is the closest star-forming region to our Solar System.

   How many **light years** away is it?

10. At the centre of our galaxy is a black hole called **Sagittarius A***.

    How many times **heavier** than the Sun is it?

11. Write out these words in order of size, from smallest to largest.

    Solar System
    Sun
    Universe
    Planet
    Galaxy

    smallest

    largest

Worksheet 3 / Space Pavilion

Welcome to the Space Pavilion – here are some questions to answer!

Start at the **wooden model** of the Lovell telescope

Try pointing the model at a friend to see how the real telescope moves around!

1. The Lovell telescope **doesn't collect the same type of light** as your eyes. What does it collect instead?

Hint: If you don't know, look for **The Dish** *on the wall near the wooden model!*

Now find the **TV screen** that shows you in strange colours

This camera sees **heat** instead of visible light! If you can't see yourself, you're too close! **Move backwards from the screen!**

2. What colour shows
   (a) the **hottest** things?

   (b) the **coolest** things?

3. **Which part of you** looks the hottest?

Nearby are some props. Try holding these up to the camera. Do they look the same?

Now find the **black hole**!

Try rolling a ball into the black hole.

4. Which force **pulls the ball into the hole**? Circle your answer...

   Gravity **Magnetism** **Friction**

5. What force **slows the ball down** as it rolls around? Circle your answer...

   Gravity **Magnetism** **Friction**

Find the **plasma ball**! (The glass ball with electricity inside)

This ball contains plasma, which is electrically charged gas. The Sun is made of plasma.

6. **Circle** whether each of these sentences are true or false...

   a) When I touch the plasma ball I see a spark jump **out** of my hand

   TRUE **FALSE**

   b) When I touch the plasma ball I see a spark jump **into** my hand

   TRUE **FALSE**

   c) The electricity is attracted to my hand

   TRUE **FALSE**

   d) When it touch it, electricity goes through me and into the floor

   TRUE **FALSE**

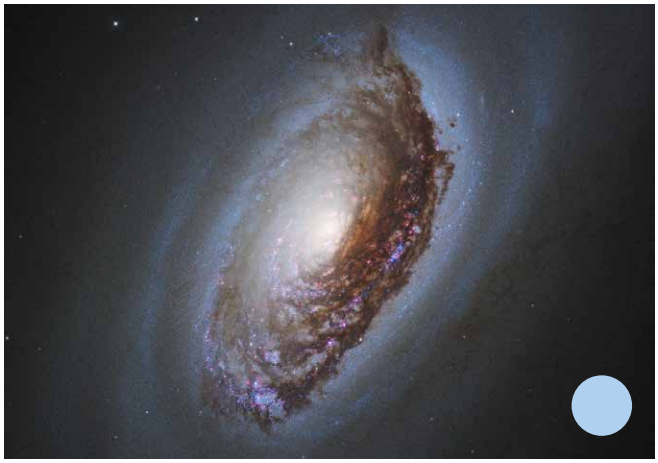
Worksheet 4 / Space Pavilion

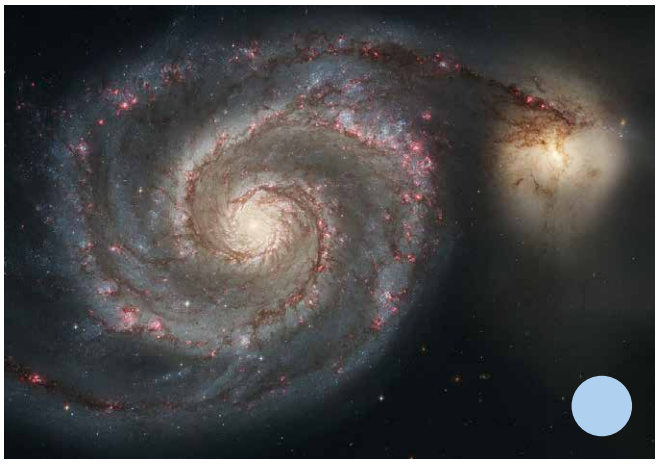
Now find the **see-through telescope**

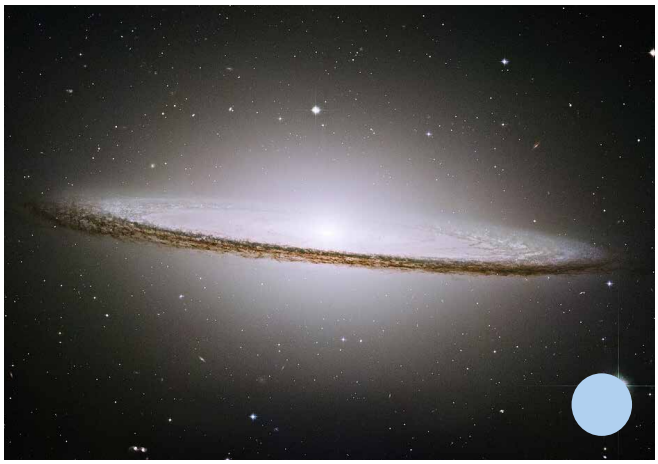
Look through the eye-piece. You'll see a picture of a galaxy.

Make sure you don't stand in front of the telescope, otherwise you'll block the view!

7. Which of these **galaxies** can you see through the telescope? **Tick** the right one...







Now find the **eyepiece** that lets you **see your own eye!**

Stroke your finger along the touch-bar to change the light level.

8. What happens to your **pupil** when the light goes **dimmer**? **Circle** the right answer...

My pupil gets smaller	**My pupil gets bigger**	**My pupil stays the same**

Look at the **world map** of telescopes.

This map shows all the big telescopes around the world!

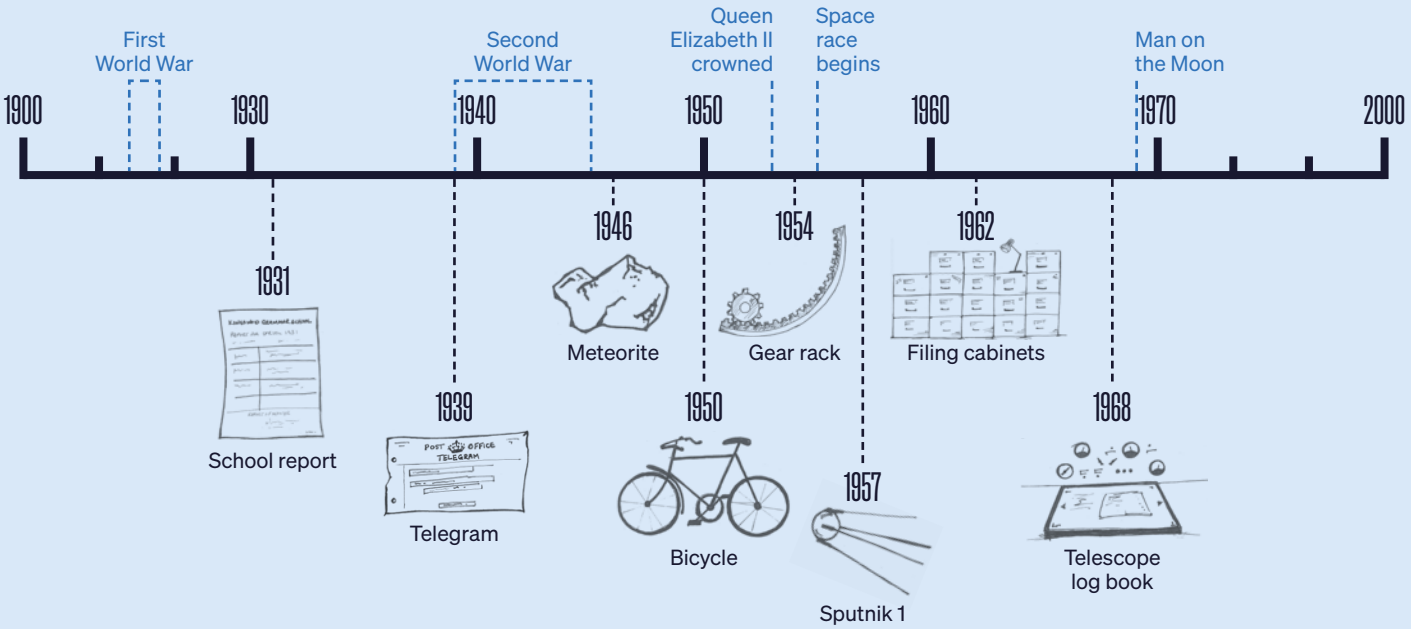
9. **Tick** off the following telescopes when you have found them:

- Robert C. Byrd Green Bank Telescope (1st biggest moveable dish, in North America!)
- Very Large Telescope (On top of a mountain in South America!)
- Effelsberg Radio Telescope (2nd biggest moveable dish, in Germany)
- Hubble Space Telescope (a telescope in space!)

10. Write down **three new things** that you have learnt today:

Worksheet 5 / First Light Pavilion

The Story of Jodrell Bank exhibition trail



Welcome to the First Light Pavilion – here are some questions to answer!

Find the objects on the Jodrell Bank timeline in the exhibition, then find the missing information to help tell the story of Jodrell Bank.

School Report: Bernard Lovell's headmaster said he "Should do well, but must definitely decide not to think of c when he is doing m or s ."

Worksheet 6 / First Light Pavilion

Telegram: When the Second World War broke out Bernard Lovell was sent to B radar station on August 1939. During the war he worked on military r.

Which other research station was he sent to?

- Danby Beacon
- Bletchley Park
- Staxton Wold

Meteorite: The first thing detected in the sky at Jodrell Bank was a meteor shower. A meteor is a piece of space rock that burns up in the Earth's atmosphere. Sometimes they fall to earth as meteorites, such as the *Campo del Cielo* meteorite. What is this one made of?

Circle the correct answer

Iron **Rock** **Steel**

Bicycle: In the early days at Jodrell Bank v (such as cars) were not allowed on site because they created electrical interference, so scientists used b to get around.

Gear Rack: The engineers building the telescope recycled gun racks from the HMS R S and HMS R in the telescope.

Sputnik 1: On 1957 the Soviet Union launched Sputnik 1, the first artificial satellite. The new Lovell Telescope detected Sputnik's launch rocket. This rocket was developed into the rockets that transported astronauts to the I S S.

Filing Cabinets: During the Cold War in the 1960s Jodrell Bank was the UK's early warning system for missile attack.

True **False**

Telescope Log Book: When scientists at the University of Cambridge discovered a new type of pulsating star they thought it was a signal from L G M! The Lovell telescope was an ideal instrument for studying these new stars which became known as p.