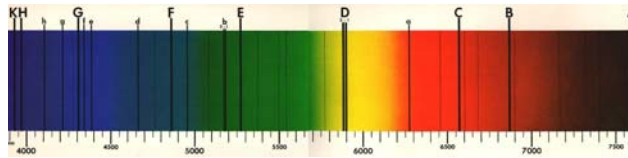
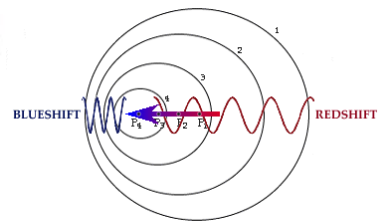


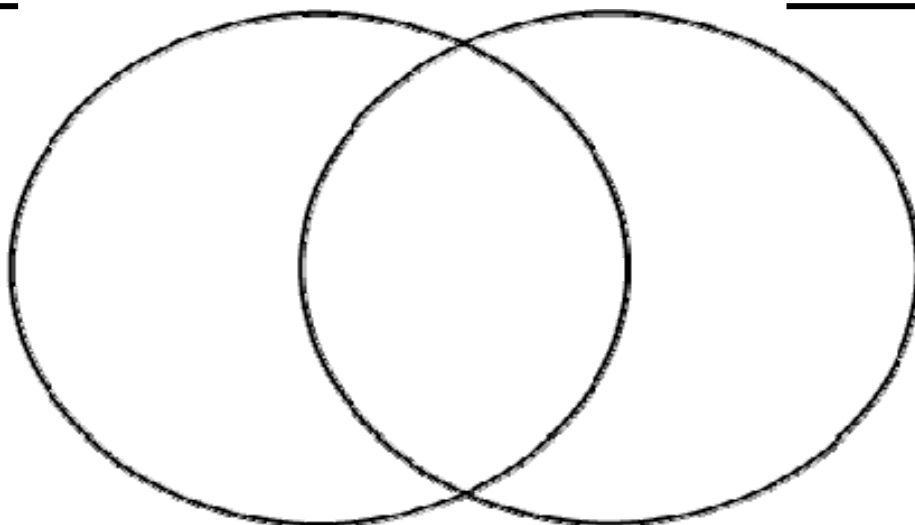
1. In pairs, look at the 'wordle' group below and guess what the two topics are for the Science in Schools lesson. Match the words to the images.



Planets Probes  
Expanding Atmosphere  
**Relative-motion**  
Galaxies Radio-telescopes  
Noise-wavelength Doppler-effect  
Absorption-spectra Solar-system  
Light-wavelength Living-organisms  
Rockets Extra-terrestrial-life  
Fossilised-remains sun  
Hubble-space-telescope



2. Categorise the words from the two topic areas within the 'venn' diagram, positioning words in the centre that cross between the two topics.



**3. Ask me, tell me****Student A**

Find out about the **Doppler effect**, ask your partner and note the answer. Your partner will then ask you about your topic: **A radio telescope**. Do not show your partner the text.

**Ask:**

1. **What is the Doppler effect?**
2. **What is it used for?**
3. **How does it work?**

**Tell:**

A **radio telescope** is a form of directional radio antenna used in radio Astronomy. They are used in tracking and collecting data from satellites and space probes.

In their astronomical role they differ from optical telescopes in that they operate in the radio frequency portion of the electromagnetic spectrum where they can detect and collect data on radio sources.

**Glossary:**

**tracking** (n) /ˈtrækɪŋ/ a way where electrical waves are used to follow the direction of objects, such as spacecraft, in space

**collect** (v) /kəˈlekt/ to bring together

**operate** (v) /ˈɒp.ər.ət/ be in action or have an effect

**Ask me, tell me****Student B**

Find out about **the radio telescope**. Ask your partner and note the answer. Your partner will then ask you about your topic: **The Doppler effect**. Do not show your partner the text and try to use your own words.

**Ask:**

1. **What is a radio telescope?**
2. **How does it work?**
3. **What can it be used for?**

**Tell:**

The **Doppler effect** is the change in frequency of a wave for an observer in relation to its source. When the source of the waves are moving towards the observer, each wave is emitted from a position closer to the observer than the previous wave. Each wave takes slightly less time to reach the observer than the previous wave, so the waves, ‘bunch together’. The Doppler effect with light waves is used in Astronomy to measure the speed at which stars and galaxies are approaching or receding from Earth.

**Glossary:**

**a wave** (n) /weɪv/ a movement repeated after a pause

**emit** (v) /ɪˈmɪt/ to send out a noise or light

**bunch together** to move close together to form a tight group

**approach** (v) /əˈprəʊtʃ/ to come nearer to something

**recede** (v) /rɪˈsiːd/ to move further away into the distance

**4. 60 seconds adventure in Astronomy / life on Mars. Film clip.**

Watch the film clip and tick the sentences: true or false.

		True	False	?
1.	There is life on Mars.			√
2.	David Bowie is an Astronomer.		√	
3.	There are no bug eyed monsters on Mars.	√		
4.	There could be microbes on Mars.	√		
5.	David Bowie is a Martian.		√	
6.	There could be microbes on other planets.	√		
7.	Asteroids from Earth may have transported microbes to Mars	√		
8.	David Bowie is a musician and wrote the song, 'Space oddity'.	√		

**5. 60 seconds adventure in Astronomy / The Big bang. Film clip.**

Watch the film clip and tick the elements you see/hear or you see and hear.

		See	Hear	S+H
1.	The universe expanding as a result of a big explosion.			
2.	An expanding balloon.			
3.	Extrapolation backwards.			
4.	A super dense, compact ball.			
5.	Expand and cool.			
6.	A watering can.			
7.	Planck satellite.			
8.	A croissant			
9.	Background radiation			
10.	A rock concert			