

Astronomy

Outline	Learners guess what might be the subject of the lesson from a set of words within a 'wordle'. This is extended to a collaborative exchange of knowledge and content in put.
Thinking skills	Guessing, hypothesising, categorising
Learning skills	Cooperative learning, interpersonal skills
Language focus	Nouns and question forms related to the topic students will learn.
Language skills	Speaking, reading, writing, listening
Time	80mins approx
Level	A2 and above
Preparation	<p>Make photocopies of the worksheets for each student. Internet connection in class. Pre-view short clips:</p> <p>60 seconds adventure in Astronomy / Life on mars http://www.open.edu/openlearn/science-maths-technology/science/physics-and-astronomy/astronomy/life-on-mars-0</p> <p>60 seconds adventure in Astronomy / The big bang http://www.open.edu/openlearn/science-maths-technology/science/physics-and-astronomy/astronomy/60-second-adventures-astronomy-the-big-bang</p>

Guessing the lesson

Procedure:

20mins

Pairs

1. Wordle

- Distribute the wordle worksheet and explain to the students that they are going to guess the two topic areas of the lesson from the collection of words.

Answer for images (from left to right): *Hubble space telescope. Absorption spectra. Doppler effect*

Answer: *Telescopes and the universe. Mars and aliens*

2. Venn

- Listen to the learners' ideas before revealing the answer. Learners label the venn and categorise the words according to the topic areas. The categorisation may vary, but is aimed to support reflection, engagement and memory.

Answers:

<i>Telescopes and the universe</i>	<i>both</i>	<i>Mars and aliens</i>
<i>Hubble space telescope</i>	<i>Galaxies</i>	<i>Extra terrestrial life</i>
<i>Doppler effect</i>	<i>Solar system</i>	<i>Living organisms</i>
<i>Relative motion</i>	<i>Planets</i>	<i>Fossilised remains</i>
<i>Light wavelength</i>	<i>Atmosphere</i>	<i>Noise wavelength</i>
<i>Expanding</i>	<i>Radio telescopes</i>	<i>Probes</i>
<i>The sun</i>		<i>Rockets</i>
<i>Big bang</i>		
<i>Absorption spectra</i>		
<i>Relative motion</i>		

3. Guiding understanding

20mins

Ask the learners the following questions for reflection and exchange in small groups.

- What words can you add to these groups?
- Which words do you know?
- Which words don't you know?
- How can you guess the meaning of the words you don't know? (*prefix/suffix, word relationship, word class, context*).
- Learners look up one word they don't know in the dictionary and record the definition. They read the definition out for their partner to guess which word it is.
- Invite learners to do a concordance search on the internet to see how frequently the vocabulary occurs with other language <http://corpus.byu.edu/bnc/> or do a visual thesaurus search <http://www.visualthesaurus.com/>
- Elicit responses as a whole class and board new language to be shared. Learners will be able to use the language for the next speaking activity.

3. Ask me, tell me

20mins

- Put the learners into pairs, student A and B.
- Distribute the, 'Ask me, tell me worksheet' the respective parts to each learner.
- Encourage the learners to answer their partner's questions in their own words, using the glossary box as support.

4. Life on mars film clip

10mins

This is a short and comic explanation of scientists' quest for life on mars.

- Play the 60 seconds film clip
- Distribute true/false statements worksheet, ask learners to read through and check for understanding.
- Play the clip again, learners tick true or false
- Learners check their answers in pairs then check as a whole class.

Answers		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. The big bang

10mins

This is a short and comic explanation of scientists' understanding of the universe.

- Play the 60 seconds film clip
- Distribute see/hear statements worksheet, ask learners to read through and check for understanding.
- Play the clip again, learners tick see/hear/ s+h
- Learners check their answers in pairs then check as a whole class.

Answers		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			√