

Where do I put my Big Telescope?

Credit: ESO/Y. Beletsky



Science and
Technology
Facilities Council

Activity Instructions

What you will need

- A relief map of the British Isles
- Flag labels or markers
- Place information cards (x9)
- Bortle Scale card

What to do

As a class or in smaller groups, use the relief map to decide on the best place to put your big telescope.

Place Information Card



Beccles



Type	Small Town
Place info	A town in England close to a National Park called The Broads. The Broads is a large wetland habitat with rivers, marsh and woodland.
Population	About 10,000 people
Bortle Scale	Class 4
Altitude	39 feet/ 12 m

Place Information Card



Kinlochewe



Type Remote Highland Village

Place info A very small village in the north of Scotland. It is in a valley surrounded by lots of large mountains.

Population About 60 people

Bortle Scale Class 1

Altitude 98 feet / 30m

Place Information Card



Armagh



Type	Large Town
Place info	A town in Northern Ireland close to the capital Belfast.
Population	About 15,000 people
Bortle Scale	Class 5
Altitude	121 feet/ 37m

Place Information Card



Birmingham



Type Large City

Place info The second largest city in England.
A busy place with lots of traffic and buildings.

Population About 1 million people

Bortle Scale Class 8

Altitude 460 feet/ 140m

Teacher Information

Things to think about

- Light pollution (see Bortle Scale card)
- Weather
- Landscape
- Habitat
- Wildlife
- People living there
- Roads and transport
- Natural disaster risk (e.g. flooding)
- Noise

Teacher Information

Glossary

Remote – a place that is far away from where most people live.

Altitude – a way to measure how high up something is.

Observatory – a building where there are telescopes to look at space.

Telescope – a tool we can use to see far away things in space (like stars) by collecting light, sometimes with mirrors.

Teacher Information

Most telescopes use visible light that we can see with our eyes. They need to be far from bright lights, which interfere with what they can see. There are other types of telescope that see invisible light (such as X-rays or radio waves) that we can use to investigate space – even in the daytime.

Examples of all the types of telescopes can be found in the STFC Little Book of Big Telescopes resource.

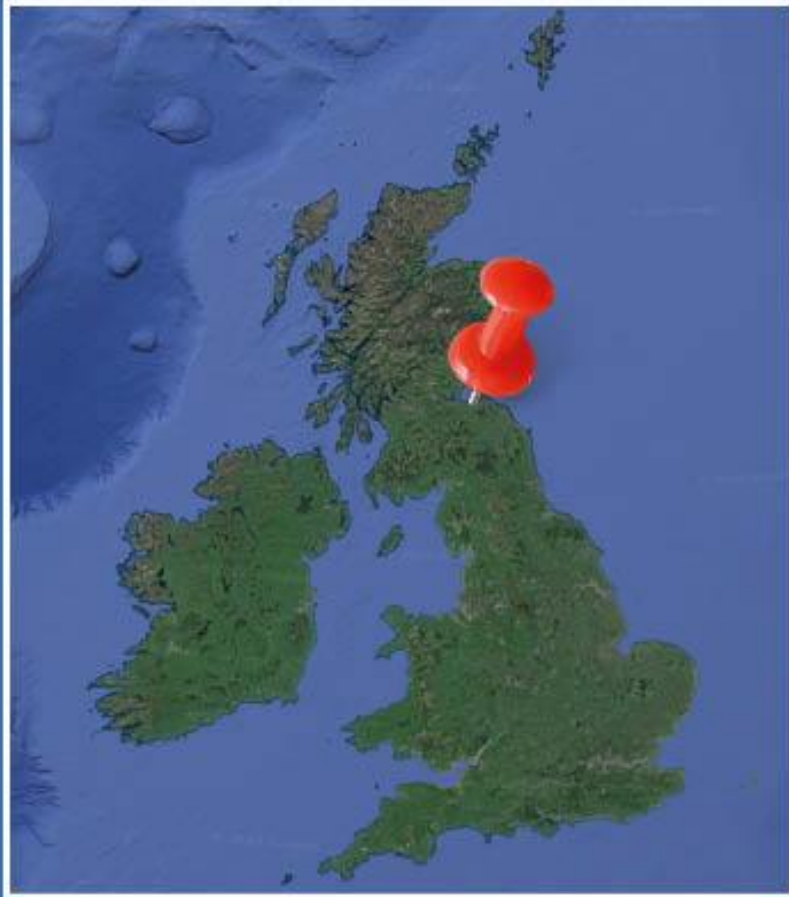
Scan the QR Code below to access an online copy of the STFC Little Book of Big Telescopes resource.



Bortle Scale		
Class	What can you see?	
Excellent Dark Sky	1	It is very dark! You would find it hard to see your hands if you held them in front of you. The sky is full of stars and you would be able see our galaxy the Milky Way.
Dark Sky	2	
Country-side Sky	3	
Village Sky	4	If you look into the distance, you will see a glow where the sky meets the ground. This glow comes from cars, houses and streetlights in towns and cities. It is called light pollution.
Small Town Sky	5	
Town Sky	6	
Large Town Sky	7	
Edge of City Sky	8	
City Centre Sky	9	The sky glows orange with light pollution making it hard to see many stars but you can still spot some patterns and planets.



Place Information Card



Royal Observatory Edinburgh



Type	City
Place info	This observatory was built over 120 years ago. It now has lots of houses nearby causing light pollution.
Population	About 500,000 people
Bortle Scale	Class 6
Altitude	479 feet/ 146m

Place Information Card



Roque de los Muchachos Observatory, La Palma



Type	Mountains on an Island
Place info	A volcanic island off the West Coast of Africa. The observatory is on top of the tallest mountain.
Population	No people live here
Bortle Scale	Class 3
Altitude	7690 feet/ 2344m

Place Information Card



The Extremely Large Telescope Cerro Armazones



Type	Desert and Mountains
Place info	A very dry part of the Atacama Desert in Chile, South America.
Population	No people live here
Bortle Scale	Class 1
Altitude	9220 feet/ 3046m

Place Information Card



The Very Large Telescope Cerro Paranal



Image credit: J.L. Casavieja & G. Hladych | iStockphoto.com

Type	Desert and Mountains
Place info	A very dry part of the Atacama Desert in Chile, South America.
Population	No people live here
Bortle Scale	Class 1
Altitude	8645 feet/ 2635m

Place Information Card



Image of galaxy cluster SMACS 0723, known as Webb's First Deep Field
Image credit: NASA, ESA, CSA, and STScI

L2



Type	Space
Place info	Past the Moon deep in space where there are no clouds like on Earth. Here you will find the James Webb Space Telescope.
Population	No people live here
Bortle Scale	Better than class II
Altitude	1.2 million km from Earth, orbiting the Sun