**S2 Science**

**The Dying Planet**

Follow this link and read all 3 pages on how humans have had an effect on the environment. <https://www.bbc.co.uk/bitesize/guides/zt6sfg8/revision/1>

Follow this link and watch the class clips. <https://www.bbc.co.uk/bitesize/topics/z3fv4wx/resources/1>

Do the quiz and check your score <https://www.bbc.co.uk/bitesize/guides/zt6sfg8/test>

Follow this link and read all the pages on energy production. <https://www.bbc.co.uk/bitesize/guides/zggk87h/revision/1>

Watch this video <https://www.bbc.co.uk/bitesize/guides/zggk87h/video>

Do the quiz and check your score. <https://www.bbc.co.uk/bitesize/guides/zggk87h/test>

Read these pages on fertilisers. <https://www.bbc.co.uk/bitesize/guides/z7rxsbk/revision/1>

 Do the test and check your score: <https://www.bbc.co.uk/bitesize/guides/z7rxsbk/test>

Watch this video on using natural materials to dye fabric (but no need to try at home despite what the video says!) <https://www.youtube.com/watch?v=Gwk1B66dvAM>

Watch this video on how to make plastic from potato <https://www.youtube.com/watch?v=Lhigu23NQlw>

Make a list of other products you could make or extract from natural products.

**Extension**

* If you have any seeds at home (cress seeds, seeds from the middle of a chilli) investigate how they grow best – for example plant one and keep it on a windowsill, plant another and keep it in a cupboard. (Most seeds grow on damp cotton wool, but keep out of reach of little children and animals).
* Make a summary poster of everything you know/can find out about different forms of renewable energy.
* Research climate change and design a leaflet about it – what it is, what is causing it, and simple steps people can take to help combat it.

**O Brave New World**

Follow this link and read all the pages on space science <https://www.bbc.co.uk/bitesize/guides/z8wx6sg/revision/1>

Follow this link and watch the class clips <https://www.bbc.co.uk/bitesize/topics/z8c9q6f/resources/1>

Do the quiz and check your score <https://www.bbc.co.uk/bitesize/guides/z8wx6sg/test>

Watch the following clips on DNA <https://www.bbc.co.uk/bitesize/clips/z26knbk>

<https://www.bbc.co.uk/bitesize/clips/ztksb9q>

Follow the link and read all pages <https://www.bbc.co.uk/bitesize/guides/zp7thyc/revision/1>

Do the quiz and check your score. <https://www.bbc.co.uk/bitesize/guides/zp7thyc/test>

Read these pages on rocks and the rock cycle. <https://www.bbc.co.uk/bitesize/guides/zgb9kqt/revision/1> <https://www.bbc.co.uk/bitesize/guides/zwd2mp3/revision/1>

 Do the tests and check your score: <https://www.bbc.co.uk/bitesize/guides/zwd2mp3/test>

<https://www.bbc.co.uk/bitesize/guides/zgb9kqt/test>

Watch this video on the extraction of metals from ores <https://www.youtube.com/watch?v=fZM_NF93gWo>

Watch this video on how to extract iron from iron ore. <https://www.youtube.com/watch?v=fxBIgbRT8fw>

**Extension**

* Research the planets in our solar system (you can also look at moons – Titan and Europa are good to look at)– find out what temperature they are, what the gravity is like, what gases are in their atmosphere. Decide which one you would most like to live on and design a travel guide/ poster to persuade people it would be a good place to live.
* Follow this link <https://www.bbc.co.uk/bitesize/topics/z8c9q6f/articles/zscc6yc> and write a report stating if you think a human will ever be born on mars, giving reasons why.
* Make a summary poster of everything you know/can find out about DNA and why it is important.
* Research how aluminium is extracted from its ore and write a report.

**Good Science / Bad Science**

Follow this link and read the information and watch the video on bacteria. Do the quick quiz and check your score <https://www.bbc.co.uk/bitesize/topics/znyycdm/articles/z4f26yc>

Follow this link and read about bacteria <https://www.ducksters.com/science/bacteria.php> and take the quiz at the bottom of the page.

Follow this link and read about fungi <https://www.ducksters.com/science/biology/fungi.php> and take the quiz at the bottom of the page.

Follow this link and read about viruses <https://www.ducksters.com/science/biology/viruses.php> and take the quiz at the bottom of the page.

Follow this link about how pathogens (germs) are spread <https://www.youtube.com/watch?v=vO51sFre6fg>

Watch the following clips which explain how the body’s immune systems work.

<https://www.youtube.com/watch?v=aq-F4rNuj3Y>

<https://www.youtube.com/watch?v=PSRJfaAYkW4>

Follow these links to discover how vaccines work <https://www.youtube.com/watch?v=rb7TVW77ZCs>

Science in the media – follow this link and read 2 science news articles or watch 2 science news video clips. <https://www.bbc.co.uk/news/science_and_environment>

Watch the video on the placebo effect <https://www.youtube.com/watch?v=z03FQGlGgo0>

**Extension**

* Design a poster explaining how diseases spread and telling people what they can do to prevent becoming ill.
* Research the diseases measles, mumps and rubella by following the links on this page <https://www.nhs.uk/conditions/vaccinations/mmr-vaccine/> then design a leaflet (like one from a doctors surgery) to help persuade people that having the MMR vaccine to prevent this is a good idea. You should include what symptoms the diseases have, how vaccines work and any possible side effects.
* In some countries children need to have up to date vaccinations to attend school. Do you think this is a good idea? Write a report explaining what you think, and why.

**Energy for Life**

Read this section and watch the clip. Do the quiz at the end <https://www.bbc.co.uk/bitesize/topics/zvrrd2p/articles/zn4sv9q> also watch this video clip <https://www.bbc.co.uk/bitesize/clips/z8vmrdm>

Follow this link and watch the video <https://www.youtube.com/watch?v=3XIyweZg6Sw>

Read these pages on the uses of plants <https://www.bbc.co.uk/bitesize/guides/zf9hvcw/revision/1>

Read this page on how to test a leaf for starch <https://www.bbc.co.uk/bitesize/guides/zpcvbk7/revision/3> and watch this video <https://www.youtube.com/watch?v=Vh3gvBX-DJo>

Read these pages on food webs and chains <https://www.bbc.co.uk/bitesize/guides/zq4wjxs/revision/1> and watch these videos <https://www.youtube.com/watch?v=7AZCcf4Fv14> <https://www.youtube.com/watch?v=2lqhJNgn_Wg>

Take the test and check your score <https://www.bbc.co.uk/bitesize/guides/zq4wjxs/test>

Read these pages, concentrate on biodiversity <https://www.bbc.co.uk/bitesize/guides/zw9jq6f/revision/1> also watch these videos <https://www.bbc.co.uk/bitesize/clips/z9pd2hv> <https://www.youtube.com/watch?v=b6Ua_zWDH6U>

Watch this video on sampling techniques in biology <https://www.youtube.com/watch?v=HLX76gdXgTA>

Watch these videos on identifying species using keys <https://www.youtube.com/watch?v=M51AKJqx-7s> <https://www.youtube.com/watch?v=pvzoIeWxsI0>

**Extension**

* Design a poster on biodiversity in Scotland using this website to help. <https://www.visitscotland.com/see-do/wildlife/> You can use other websites to help of you wish.
* Look for birds out of your window. When you see one use <https://www.rspb.org.uk/birds-and-wildlife/wildlife-guides/identify-a-bird/> to identify the species.
* If you have seeds in your house (cress seeds, sunflower seeds, seeds from a chilli), plant some (in soil or in wet cotton wool) and keep some in a sunny place and some in a dark place such as a cupboard. After a few weeks compare any differences between the ones that did have a chance to photosynthesise and those which didn’t and write a report on this. (keep plants out of reach of small children and pets)
* Think of as many food chains as you can , for example lettuce  rabbit  fox. You may be able to get ideas from nature programmes on TV such as “blue planet” or “planet earth”.
* These are the 10 most common uk birds <https://www.bbc.co.uk/newsround/35935561> - make a key to help people identify them.

**Light and the electromagnetic spectrum**

Read this section and watch the clip, then answer the short quiz at the end. <https://www.bbc.co.uk/bitesize/topics/zgdmsbk/articles/z7by92p>

Follow this link and read the section on light waves <https://www.bbc.co.uk/bitesize/guides/zq7thyc/revision/1>

Watch the video clips <https://www.bbc.co.uk/bitesize/clips/z7qb9j6> <https://www.youtube.com/watch?v=BL2MtP7j-xk>

Take the test and check your score <https://www.bbc.co.uk/bitesize/guides/zq7thyc/test>

Watch this video on Newton’s experiment with light <https://www.youtube.com/watch?v=--b1F6jUx44>

Read this page and watch the video on convex and concave lenses <https://www.bbc.co.uk/bitesize/guides/zgpcqhv/revision/2>

Read the pages on the electromagnetic spectrum <https://www.bbc.co.uk/bitesize/subjects/zpm6fg8> and watch this video <https://www.youtube.com/watch?v=O0PawPSdk28>

Take the test and check your score <https://www.bbc.co.uk/bitesize/guides/z66g87h/test>

Watch this video on ultraviolet radiation and your skin <https://www.bbc.co.uk/bitesize/clips/zksjxnb>

**Extension**

* Watch this video – can you use a diagram to explain what is happening? <https://www.youtube.com/watch?v=3e-LZPHBA2M>
* Research rainbows – how they happen, what different types there are, why they are curved, etc. Display what you have found out on a poster.
* Find out about one part of the electromagnetic spectrum – for example ultraviolet or x-rays – and produce a report on this. Include what it is used for and any hazards associated with its use.
* Research the link between ultraviolet light and skin cancer. These links may be useful <https://www.youtube.com/watch?v=kmqhzG8QamU> <https://www.youtube.com/watch?v=ZSJITdsTze0> . Design a leaflet to explain to people why it is a good idea to use sunscreen.

**Chemical Reactions**

Read this page and watch the videos on chemical reactions <https://www.bbc.co.uk/bitesize/topics/zypsgk7/articles/zwxhk2p> <https://www.youtube.com/watch?v=37pir0ej_SE>

Read this page on types of reaction <https://www.bbc.co.uk/bitesize/guides/zqd2mp3/revision/1> and watch this video on chemical and physical changes <https://www.youtube.com/watch?v=x49BtB5dOwg> and this one on everyday chemical reactions <https://www.youtube.com/watch?v=Tz00efBcsjo>

Read this page and watch the video on gas tests <https://www.bbc.co.uk/bitesize/guides/zgnxcj6/revision/1> <https://www.youtube.com/watch?v=V7jhc_S5WL0>

Read the pages on rates of reaction and watch the video <https://www.bbc.co.uk/bitesize/guides/z4n82hv/revision/1>

Do the test and check your score <https://www.bbc.co.uk/bitesize/guides/z4n82hv/test>

Read this page and watch the video on word equations <https://www.bbc.co.uk/bitesize/guides/zcpxfcw/revision/4> <https://www.youtube.com/watch?v=4vOPkit4BL8>

**Extension**

* Look around your home and make a list of the everyday chemical reactions you can see. Be sure to justify why it is a chemical reaction – eg colour change, gas given off, temperature change.
* Conduct an experiment to see how particle size (the size of the bits) effects rate of reaction. You could use rock salt vs ground salt. Add both to cups of water. Count how many stirs it takes to dissolve the salt. Write a report on what you find out.
* Repeat the above using salt of the same size, but use cold water in one and warm water in the other.
* Grow some salt crystals at home (ask an adult beforehand and keep out of reach of small children and pets) <https://www.youtube.com/watch?v=9zoh-COQAQM>
* Make some oobleck at home – cornstarch and cornflour are the same thing - (ask an adult beforehand and keep out of reach of small children and pets) – be warned its very messy! If you add food colour it will stain, so take care. <https://www.youtube.com/watch?v=nw8KaHglokQ> <https://www.youtube.com/watch?v=Fnd-2jetT1w>