Year 7

Term 2: Week 2

Welcome to your week 2, science work package.

Below are your weekly lessons and steps to complete each task. Make sure you follow each step and read each focus information to help you complete these lessons. After this week, we will have caught up with our human endeavour and science inquiry skill focus. Therefore, there is now more time allocated to the Earth and Space sciences activities. There is an extension activity each day for those who wish to further extend or research the topic.

Pearson science textbook login: pearsonplaces.com.au
username: firstname.lastname@student.education.wa.edu.au
password: bdhs2020

If you do not have access to the internet or an appropriate electronic device, there will be no expectations on completing those digital tasks written below.

Good luck and if you have any questions, please email me on Melissa.Gwatkin@education.wa.edu.au.

-Mrs Gwatkin

Lesson 1 - Monday

Scientific word of the day

Biodegradable: bacteria or fungi that breaks down the substance into simpler substances.

Science as a Human Endeavour

Pearson Science Book 7: Indirect evidence and particles – Pages 56-57

Focus: Indirect evidence

"Indirect evidence = facts and evidence from which something else can be inferred or reasoned. Brownian motion and diffusion are examples of indirect evidence."

Lesson Overview

1. Read through this page to learn about the indirect evidence and its link to diffusion and Brownian motion.
2. Review Questions: Answer questions 1-5 in your workbook. The sentences have been structured below for you to be able to answer in FULL sentences.
   Question 1: The two pieces of indirect evidence that advance our understanding of the particle model are _____ and _____.
   Question 2: a) The name of this process is called _____.

b) This happens because _____.

Question 3: A drop of dye added to a swimming pool spreads and diffuses until eventually you can't see it because _____.

Question 4: a) The Brownian motion is _____.

b) Brownian motion _____.

Question 5: a) Dust particles in a beam of sunlight that appear to jiggle about are an example of _____.

b) The dust particles jiggle because _____.

Extension: research deeper into the Brownian motion.

Website to look at: https://www.bbc.co.uk/bitesize/guides/zgr2pv4/revision/5

Science Understanding: Earth and Space Sciences

Pearson Science Book 7: 3.1 Renewable and Non-renewable Resources– Page 91-92

Non-renewable resource (mind map)

Focus: Non-renewable resource examples.

Non-renewable resource: A resource that cannot be replaced after it is used.

Lesson Overview

1. Read through pages 91-92 about rocks, minerals and soils being non-renewable resources.
2. Using the attached 'Non-renewable resources (mind map)', make some notes (dott points) of the key information about the examples of soil, rocks and minerals. – Like we do in class when we read each chapter for the first time.

Extension: Comparing renewable to non-renewable resources

Watch the following video on https://www.youtube.com/watch?v=PLBK1ux5b7U

- Write down in your workbook any other examples of renewable and non-renewable resources that weren't covered in the textbook.

Lesson 2 - Tuesday

Scientific word of the day

Non-biodegradable: Something that does not break down.

Science as a Human Endeavour

Pearson Science Book 7: Archimedes and the golden wreath – Pages 74-75

Focus: Calculating mass, volume and density.

"Determining the volume of oddly shaped objects is a little difficult. Archimedes used water to help him determines the gold wreaths volume.'

Density = $\frac{mass}{Volume}$ ***(density = mass divided by the volume)*** ***Volume = 1mL is the same as 1cm³***

Lesson Overview

1. Read through this page to learn about density, volume and mass within Archimedes golden wreath investigation/problem.
2. Review Questions: Answer questions 1-4 using your workbook. The sentences have been structured below for you to be able to answer in FULL sentences.

   Question 1: Displace means _____.

Question 2: The density of the pebble is _____.
Question 3: a) A certain mass of gold will take up less volume than the same mass of silver because _____.
Question 4: a) I predict that pure gold would _____.
b) I predict that a less dense substance like silver would _____.
c) I predict that a denser material like platinum would _____.

Extension: Archimedes experiment
Background information/task: Imagine you are Archimedes' assistant and he asked you to write a report about the golden wreath. Use the skills you learnt in Chapter 1 to write up a hypothesis, description of materials, a procedure and results. Finally give your conclusion.
Write your report answers in your workbook.

Science Understanding: Earth and Space Sciences

Worksheet attached: Rocks – Igneous, sedimentary and metamorphic.
The types of rock: igneous, metamorphic and sedimentary: resource sheet

Focus: *Types of Rocks:* What are the different types of rocks? What is the difference between each rock? How is each rock formed? Where can we find these different rocks? Characteristics of each rock.
Igneous rocks: rock formed by the cooling of molten rock. E.g. basalt
Sedimentary rocks: rock formed by the compacting and sticking together of sediments. E.g. sandstone
Metamorphic rocks: formed underground when other rocks are exposed to heat and pressure. E.g slate
Lesson Overview

1. Watch the following videos about the 3 types of rocks.
   - Types Of Rocks | The Dr. Binocs Show | Learn Videos For Kids: https://www.youtube.com/watch?v=CeuYx-AbZdo
   - 3 Types of Rocks and the Rock Cycle: Igneous, Sedimentary, Metamorphic: https://www.youtube.com/watch?v=EGK1KkLjdQY
   - The 3 types of rocks: https://www.youtube.com/watch?v=KtbAEYwkC1E
2. Using the attached 'rocks' worksheet, write in each section of the igneous, sedimentary and metamorphic rocks. (use the videos to help you)
3. Extra information can be found on the following websites:
   - Three Types of Rock: https://www.amnh.org/exhibitions/permanent/planet-earth/how-do-we-read-the-rocks/three-types-of-rock
   - The types of rock: igneous, metamorphic and sedimentary: https://www.zmescience.com/science/geology/types-of-rock/

If you do not have access to the internet, a printout has been attached from 'The types of rock: igneous, metamorphic and sedimentary' website.

(There is no extension for this lesson)

Lesson 3 - Wednesday

Scientific word of the day

Physical properties: describes the characteristics of a substance like its appearance, melting, freezing and boiling points and its hardness.

Science as a Human Endeavour

Pearson Science Book 7: Debating resources – Pages 94-95

Focus: *"Resources cause a lot of debate. Communities often have differing views on what is more important – jobs or the environment."*

Lesson Overview

1. Read through these pages to learn about the many debates around resource and their use.
2. Review Questions: Answer questions 1-4 in your workbook. The sentences have been structured below for you to be able to answer in FULL sentences.

   Question 1:

	Advantages	Disadvantages
a) Coal mining	-	-
b) Fracking	-	-
c) Carbon capture and storage	-	-

   Question 2: Farmers and miners have different views on using fracking to mine coal seam gas because _____.

   Question 3: a) The most appropriate approach for Australia to take on carbon capture and storage is _____.

   b) The most appropriate approach for Australia to take on fracking is _____.

   Question 4: a) I believe this because _____.

   b) I believe this because _____.

Extension: Global warming

Watch the following video: Causes and Effects of Climate Change | National Geographic

https://www.youtube.com/watch?v=G4H1N_yXBiA

There are a lot of debates around the impacts and causes of climate change. Answer the following questions in your workbook:

1. What are you concerns or ideas on climate change?
2. Do you think we need to make changes to help protect our resources and our earth?
3. What are somethings you do at home (and/or your family) to help reduce, reuse or recycle our resources?

Science Understanding: Earth and Space Sciences

Pearson Science Book 7: Conserving resources – Pages 93

Focus: The importance of conserving our resources (no matter if they are renewable or non-renewable). Recycling, reducing and reusing.

1. Read through page 93 about the important of conserving our resources.
2. Answer in your workbook:
   - Why do you think it is important to conserve both **renewable** and **non-renewable** resources?
   - List 5 things the Boddington Community could do/already do to conserve resources?
   - List 5 things you do within your home to conserve resources?
   - Provide one way that the school could conserve their resources more?
3. Hybrid cars were developed as an alternative resource or technology. In hope to minimise the use of the non-renewable resource of oil.
   - A hybrid car is a combination of _____ and _____.

- List 5 examples of hybrid cars available to purchase. (company and car name) e.g. Toyota, Prius
- Provide another example of an alternate resource that has been developed to reduce the use of a non-renewable resource. E.g. natural gas

(There is no extension for this lesson)

Lesson 4 - Thursday

Scientific word of the day

Chemical Properties: how substances react with other substances.

Science Understanding: Earth and Space Sciences

Australian Resource reviews 2017:

https://d28rz98at9flks.cloudfront.net/116704/ARR_Bauxite_2017.pdf

KWL chart

Fishbone graphic organiser – Down to the boens

Focus: The mining of bauxite

"Contains aluminium which is used for making aircraft, drink cans, window frames, boats and cooking foil. Bauxite is a natural product of weathering and occurs as a white to grey to reddish orange/brown crust at or near the Earth's surface in regions that have, or have had in the past, high rainfall. Bauxite is generally hard, heterogeneous in appearance and can be nodular, layered or massive."

Lesson Overview

1. For the next few weeks we will be learning about mining; in particular bauxite and gold mining. – In relevance to our local community. – starting with bauxite.
2. Using your KWL chart given, begin by filling out what you already know about bauxite (I already know section) and then what questions you might have (what I want to know). *Please leave the 'what I have learnt section' for a later lesson.
3. If possible, talk to family members, friends or neighbours who might be involved in the local mine site.
   - Using your 'what I want to know' questions, see if they can answer any of those questions.
   - Write down in your workbook somethings you learnt from those conversations. (dott points)
   - Was there anything interesting that you found out?
4. Read the attached information from the 'Australian resource reviews 2017 – I have highlighted around the sections to read. (You do not need to read the whole 3 pages)
5. Using the 'fish bone' graphic organiser attached, write key dott points on each title;
   - What is bauxite?
   - Possible commercial application
   - 4 Long term bauxite mines
   - 4 primary aluminium smelters
   - Boddington example

Extension: Other Countries around the world where Bauxite is found

Bauxite is not just found in Boddington, there are many other mining sites around the world.

1. Using an electronic device, research and then **list 5** other places where bauxite is found in your workbook.

Science Understanding: Earth and Space Sciences

Pearson Science Book 7: 3.1 Review Questions– Page 96

Focus: Review chapter 3.1 and check for understanding.

Lesson Overview

1. Referring to chapter 3.1, answer the following questions in your workbook. FULL sentence answers. (I have missed some questions on purpose, please do the ones outlines below.)

1, 3, 4, 5, 6, 8, 11, 12, 13, 15 and 16

(There is no extension for this lesson)

Weekly Practical - Friday

Scientific word of the day

Diffusion: a process in which two liquids or gases mix.

Practical Investigations: Earth and Space Sciences

Pearson Science Book 7: 3.1 Renewing air– Page 97

Focus: To design your own investigation about what a leaf needs to produce oxygen.
Renewable resource: A resource that is always being replaced naturally. (air is an example)
Non-renewable resource: A source of energy that cannot be replaced after it is used.

Lesson Overview

1. Using Page 97, complete the practical on 'renewing air'. (Use those items you have available at home; it is not expected that you purchase the examples you may not have)
   Make sure you follow the instructions step-by-step, so that you can get the best results possible.

Hints and common mistakes

- In step 4, gently stir to remove bubbles that stick to the leaf when it is placed in the liquid in the beakers.
- In step 5, stir the soda water to remove all the bubbles of carbon dioxide on the leaf surface.
- At the end of the investigation, the bubbles on the leaves may not all be oxygen. Some carbon dioxide could come out of the solution as the temperature of the soda water rises in the sunlight. In this step, it is not possible to determine how much of the bubbles are oxygen.

2. Once you have completed your practical, in your workbook answer the review questions 1-5 in FULL sentence answers.
3.

Feel free to email any pictures of your results/observations to: Melissa.Gwatkin@education.wa.edu.au