Name: _____

Montsaye ACADEMY
Excellence Resilience Aspiration

Geography

Homework Booklet

Year 8

Term 3: Rocks, soils and ecosystems

Homework 1	Learn keywords	Due date:	Completed? Yes/No
Homework 2	Guided Reading Activity	Due date:	Completed? Yes/No
Homework 3	Prepare for knowledge test	Due date:	Completed? Yes/No

Geography Homework Tasks Term 2

Homework 1 - Learn the keywords below for a mini test at the start of next lesson.

You could read through the words, write them out, create a match up activity or get someone to test you.

Keyword	Definition
Ecosystem	Made up of living things and the environment that they live in (non-living things)
Habitat	The natural environment in which an animal or plant usually lives
Physical weathering	Rock gets broken into smaller pieces by water, ice, or plants and animals. No chemical reaction takes place.
Chemical weathering	Minerals in the rocks undergo chemical reactions. This helps to weaken the rock.
Biome	Large ecosystems on land, covering large areas (desert, tropical rainforest)
Biodiversity	The number of different species living in an ecosystem. More species means a higher biodiversity.
Primary producers	These are autotrophs that make their own food in a process called photosynthesis using energy from sunlight, carbon dioxide and water.
Logging	The deforestation (cutting down) of trees in the rainforest to then sell for a profit
Decomposers	Organisms that break down and eat dead animals and plants

Homework 2 – Complete the guided reading activity on the next page.

You may wish to write your answers out on paper, so you have more space.

Homework 3 - Use the knowledge organiser to create flashcards, notes or a revision poster to revise for your end of unit assessment.

guided READING

Palm oil is an edible vegetable oil that comes from the fruit of oil palm trees. Two types of oil can be produced; crude palm oil comes from squeezing the fleshy fruit, and palm kernel oil which comes from crushing the kernel – or the stone in the middle of the fruit. Oil palm trees are native to Africa but were brought to South-East Asia just over 100 years ago. Now Indonesia and Malaysia make up over 85% of global supply. 42 other countries also produce palm oil.

Palm oil is in nearly everything. It's in close to 50% of the packaged products we find in supermarkets – everything from pizza and chocolate to shampoo and lipstick.
Palm oil is an extremely versatile oil that has many different properties and function which makes it so useful and so widely used. It is odourless and colourless so doesn't alter the look or smell of food products. In many countries it is used as a cooking oil.

Palm oil has been and continues to be a major drive of deforestation of some of the world's most biodiverse forests. The habitat of the already endangered Orangutan, pygmy elephant and the Sumatran rhino are being destroyed. Palm oil production is said to have be responsible for about 8% of the world's deforestation between 1990 and 2008. This is because forests are burned to clear areas where people can grow oil palms – even if it is illegal. Burning forests like this was blamed for extreme air pollution levels in Singapore in June 2013, when a thick haze covered the city. Children had to stay inside to protect themselves from the unclean air. The carbon rich peat soils are also throwing out millions of tonnes of greenhouse gases into the atmosphere and contributing to climate change.

The palm oil industry has also been accused of exploitation of workers and child labour. Palm oil is an incredibly efficient crop, producing more oil per land area than any other equivalent vegetable oil crop. Globally, palm oil supplies 35% of the world's vegetable oil demand on just 10% of the land. Palm oil is also an important crop for the GDP of emerging economies and there are millions of smallholder farmers who depend on producing palm oil for their livelihood.

Palm oil can be produced more sustainability and things can change. Some manufacturers have said they will only buy palm oil that they know has been produced in a sustainable way, but many say it is difficult to know for sure whether or not farmers have actually followed the rules.

1 What is palm oil?

2 What are the two types of palm oil?

3 What is palm oil found in?

4 Which animal environments are endangered?

5 Why does palm oil lead to deforestation"?

6 How does palm oil lead to climate change?

7 What has the palm oil industry been accused of?

8 How efficient is the palm oil crop?

9 Why is palm oil an important crop?

10 What does sustainable mean?

11 Why might it be difficult to know whether or not farmers have followed the rules?

Year 8: Rocks, Soils and Ecosystems Knowledge Organiser

Topic Revision Checklist

- Different rock types
- The rock cycle
- Physical and chemical weathering
- Why is soil important to plant life?
- The characteristics of a soil profile
- Ecosystems, biodiversity and food webs
- Tropical rainforest location and climate
- Tropical rainforest plant and animal adaptations
- The debate around deforestation

Rock types

Rock is a mixture of minerals.

3 rock types:

- **Igneous rock:** Formed by the cooling of molten magma or lava on the Earth's surface. Igneous rocks have crystals and are usually quite tough.
- **Sedimentary rock:** Formed when particles of minerals which were eroded from rock in one place get stuck together again in another place, to form a new rock. They may contain fossils.
- **Metamorphic rock:** A rock that has been transformed by extreme heat or pressure. This rock has been changed underground, without melting.

The rock cycle

What is the rock cycle? The Earth's rocks do not stay the same forever. They are continually changing because of processes such as weathering, erosion and large earth movements. The rocks are gradually recycled over millions of years. This is called the rock cycle.

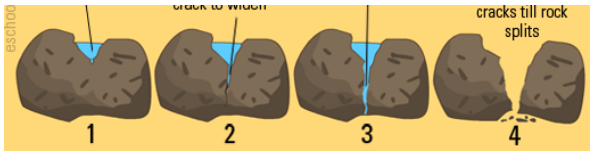
How does the rock cycle work? A sediment of sand on the ocean floor turns into sandstone. On exposure to high pressure and/or heat the sandstone will become quartzite. If this gets hot enough it will melt, and get mixed with minerals from other rocks. The magma may harden underground to give granite, containing quartz crystals. The granite may be pushed upwards. Or the rock above it may get eroded away. So eventually it reaches the surface where it gets weathered. The quartz crystals are released as sand. The cycle then starts again.

Weathering

Chemical weathering: Minerals in the rocks undergo chemical reactions. This helps to weaken the rock.

Physical/mechanical weathering: Rock gets broken into smaller pieces by water, ice, or plants and animals. No chemical reaction takes place.

Freeze thaw weathering:

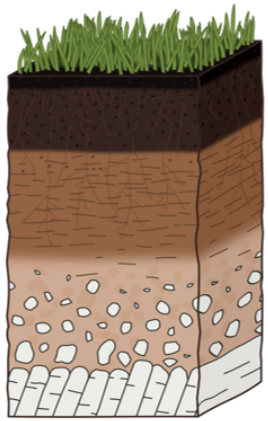


Water collects in the crack of the rock. Temperatures drop below oC and water freezes. Ice expands when it's frozen. This forces the cracks in the rock to get wider. Ice thaws and water gets deeper into the cracks again. Repeated expansion and contraction causes further cracks until the rock splits. This creates a landscape with angular, shattered rocks. A prime example is Castell y Gwynt in Wales

Soil

Soil is a mixture of dead rock and dead and decomposing plant and animal matter. Decomposition of dead plants and animals adds organic matter called humus to this mixture of sand and clay.

Below is a diagram of a soil profile. Note how the characteristics of soil change as you go from the top layer to the bottom layer.



A) Humus: A thin layer of rotting dead organic matter (plants and animals)

B) Topsoil: A layer rich in humus and minerals from weathered rock, full of the nutrients plants need to grow

C) Subsoil: A layer that tree roots reach, rich in minerals but poor in humus

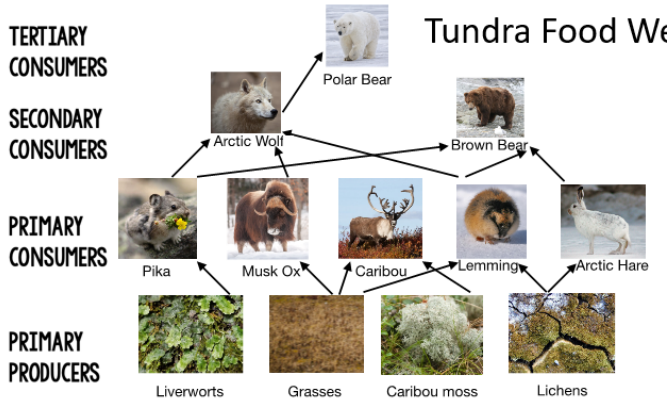
D) Weathered rock: Rock that has been broken down into chunks and grains

E) Bedrock: Solid rock that hasn't weathered yet

Earthworms digest leaves and clay, so their waste is rich in nutrients. Bacteria feed on dead plant matter, 'rotting' it to make humus.

Decomposers: organisms that break down and eat dead animals and plants. Decomposers are essential to the tropical rainforest ecosystem as they release nutrients from dead leaves and animal waste.

The Tundra ecosystem food web



- **Ecosystem:** Made up of living things and the environment that they live in (non-living things)
- **Biome:** Large ecosystems on land, covering large areas (desert, tropical rainforest)
- **Biodiversity:** The number of different species living in an ecosystem. More species means a higher biodiversity.
- **Primary producers:** These are autotrophs that make their own food in a process called photosynthesis using energy from sunlight, carbon dioxide and water. They are not mobile (can't move). They are the foundation of an ecosystem.

Tropical rainforest plant and animal adaptations

Tropical rainforest species have adapted in order to survive in their environment.
Drip tips: Leaves are shaped like a funnel, which allows water to run off quickly. This is important because if water remains on a leaf it can cause fungus and bacteria to grow which would be harmful.
Buttress roots: These give the tallest trees big, strong foundations. This means they won't fall over.
Lianas: These are climbing woody vines. They have roots in the ground and climb high into the canopy to reach sunlight. They can use sunlight for photosynthesis to make energy. Without them they wouldn't be able to get as much sunlight as the rainforest canopy would shelter the sun from them.
Toucans: These have vivid colours to provide camouflage in the rainforest canopy. Their beaks are strong enough to crack open hard nuts. This provides them with a wider food choice to help them survive.
Three-toed sloth: They have strong digestive systems and slow metabolism so they don't need to eat as much. This is useful because they are slow and not the most effective at catching prey. They can turn their head almost 270- degrees allowing them to always be on the lookout for predators.
Piranha: Have a large, lower jaw and razor sharp, triangle shape teeth to help kill prey. When they lose a tooth it can grow back.

Human activity in the rainforest and how does it help Brazil?

Logging: The deforestation (cutting down) of trees in the rainforest to then sell for a profit.
Mining: Rainforests are rich in many natural resources such as alluvial gold deposits. These can be sold for a high profit. Mining scars the landscape and causes pollution.
Tourism: Local people can make money from providing tours of the tropical rainforest using their knowledge.
Farming (agriculture): MNCs buy land from local people for growing crops or rearing livestock. This also creates jobs.
Building houses: Brazil's population is rapidly growing and needs more homes.

Is deforesting the Amazon worth it for Brazil's development?

Brazil is a Newly Industrialising Country (NIC) and its economy is growing. It's GDP per capita is $6798 but this is still quite low. It's living standards are gradually improving.

Arguments for deforestation:

- Deforestation for mining and farming creates jobs for people in LICs/NICs. This allows them to earn a good income.
- MNCs that are deforest the rainforest will pay taxes to the government of the country. This means the government will have more money to spend on services like schools and hospitals.

Arguments against deforestation:

- Trees are able to take carbon out of the atmosphere and store it. This decreases the rate of climate change. If we cut down more of the rainforest, this will speed up climate change.
- Indigenous people living in the rainforest will lose their home. Indigenous people also have valuable knowledge of how to use the animals and plants in the rainforest.
- Large areas of the rainforest are being cut down, which causes a loss in biodiversity.
- Deforestation reduces tourist numbers, meaning this industry will lose money.