Seymour College

Humanities Work Pack 2021
Year 9 – Term 4
Student: Teacher:

Learning Intention	Success Criteria
- Understand and practice our geographical skills through researching your chosen company - Developing skills to understand and present research - Reading and comprehension of research articles	I can link the new unit to previous ones I can read information and answer questions I can analyse information I can provide my own opinions and justify them

Step 1	Choose a multinational company to research
Step 2	Keep a record or all websites used to create a bibliography
Step 3	Start your research (show your answers to question a, b, d, e & g on the map)
Step 4	Create or find graphs/tables to display your answers for questions f & h
Step 5	Ensure that you have answered all questions in full, explaining your findings
Step 6	Write your bibliography showing all sources you used for your research
Step 7	Proofread your work – check spelling/grammar/punctuation etc.
Step 8	Submit your completed work to your teacher

Notes to Parents/Guardians:

You can support your child to complete their work at home by:

- Encouraging them to allocate time for specific subjects
- Reading the material and talking about the ideas with your child (where possible)
- Checking in with your child to ask how they are going
- Contacting Teachers if more support or explanation is required

Submission of Work and Feedback:

Students can upload work to Compass where access is available. Photos of handwritten tasks may also be uploaded. Students can also mail hard copies of their work back to the school in the supplied envelope.

Students and parents can continue to communicate with Teachers via Compass email. Any questions should be directed to the school email: seymour.co@education.vic.gov.au

Multinational Companies and Global Interconnections

Research Assignment

"In the last few decades, many large businesses based in wealthy countries have chosen to manufacture their goods in poorer developing countries. As these businesses operate in more than one country they are called **multinational companies. Some of these are very recognisable brands like Apple, McDonalds, Adidas and Nike, Commonwealth Bank, General Motors, Coco Cola, Am Bev Brewing Company, Starbucks, Nestle, Samsung and BP.** These companies choose to manufacture their products in developing countries for a variety of reasons, but mostly for cost."
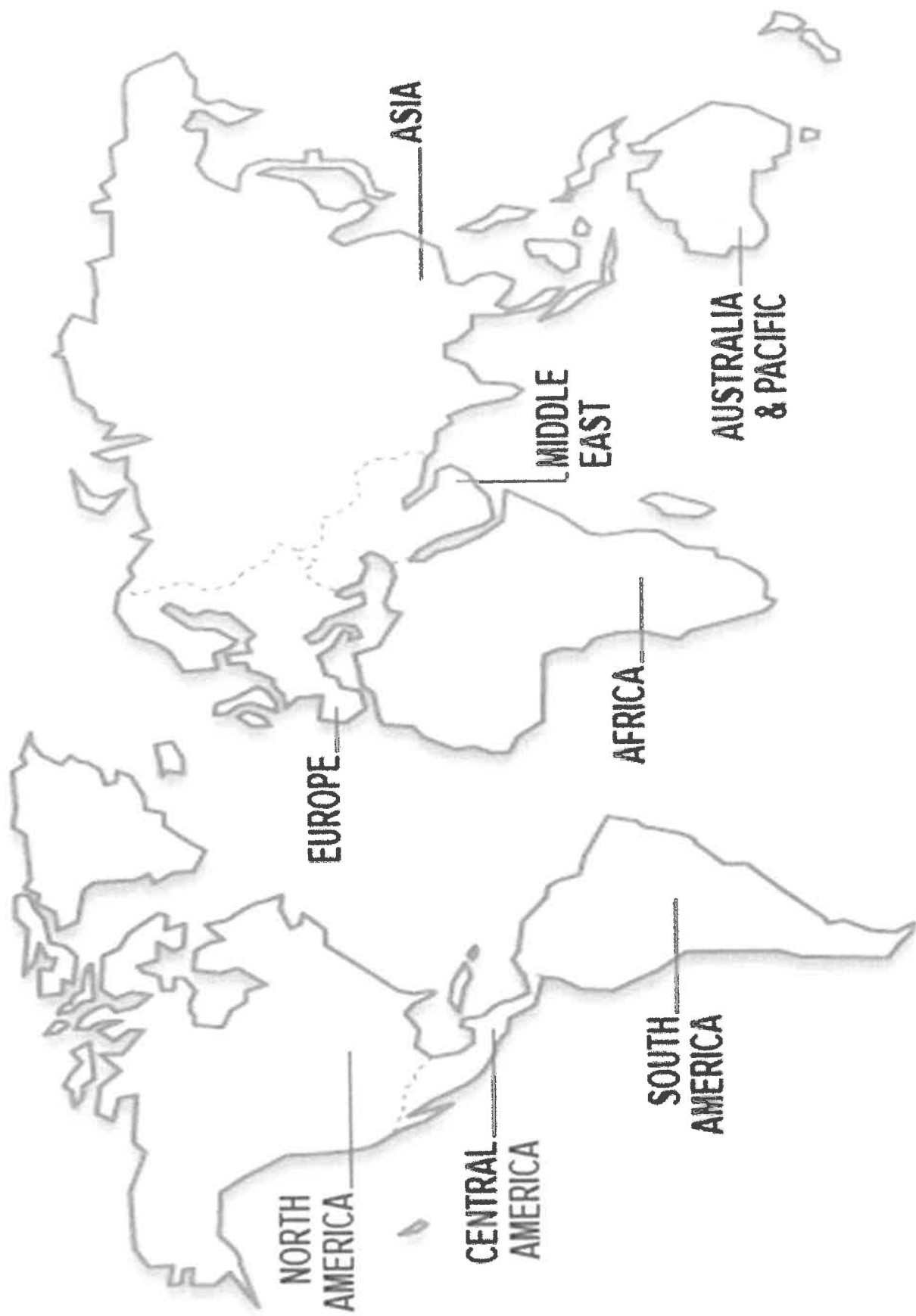

Your task is to investigate a company of your choice that is considered 'multinational' and create a profile on them, outlining the interconnections they make possible through their business. Remember to record your sources and websites used to include in your bibliography.

You should aim to address the following:

a. Where is the main/head office? Do they have multiple main offices across the globe? (show on map)

b. In which countries does this company manufacture its goods? (show on map)

c. Why do they manufacture the products/goods in these countries? How does this compare to where they are mainly based?

d. Where are goods transported to – which places around the world? (show on map)

e. Where are the goods/products sold; in how many countries with how many stores? (show on map)

f. How many of their goods are sold worldwide? You may find graphs or tables online that you can use.

g. What materials are used in the manufacture of the goods? Where do the materials for the goods come from – which countries? (show on map)

h. How many employees does this company have in each country? Create a graph to display this data.

i. Does your company have offices or manufacturing plants in Australia?

j. Have they been involved in any business scandals?

k. What is the estimated net worth of this company?

- **Present your research (fully summarised, NO COPY/PASTING) in a Word Document.**
- **Your work must include a map with relevant information plotted on it. (For questions a, b, d, e, g)**
- **Your work must include <u>relevant</u> graphs/tables and images. (For questions f & h)**
- <u>**You must include a bibliography.**</u>

Y9

PACK 3 - SCIENCE

WEEK 1&2 term 4	Assigned Lesson Content	Completed?
Lesson 1	1. Natgeo – The ring of fire 44663. Reading and Quiz 2. Use the list of volcanoes and the world map to locate 7 to 10 of the volcanoes on the list and connect all of them with a thick line. Can you see the ring of fire?	
Lesson 2	1. Earthquake test six story building 18697. Reading and Quiz 2. Do the Earthquake quiz. You can research the questions on internet.	
Lesson 3	1. Natgeo – Volcanoes impact on ecosystems. Reading and Quiz 2. Plate tectonics worksheet	
Lesson 4	1. Australian wildfires aftermath. Reading and quiz 2. Activity from textbook page 375: Plants and Fire (you can read also page 376)	
Lesson 5	1. Natgeo – Floods impact ecosystems. Reading and Quiz 2. Types of boundaries chart. Use some arrows to indicate the direction of the movement in the first column. Sketch a simple diagram in column two. One sentence to describe the type of boundary in the third column. What do they produce on the surface of the Earth these different plate boundaries? (volcanoes, mountains, earthquakes, etc) in column four. Give an example around the world where this type of boundary exists in column five.	
Lesson 6	1. Volcano paper model	
Additional material	2. Wyoming devilstower article. Reading and Quiz 3. Research on Australia tectonic history. Construct a mindmap with the information collected.	

The Pacific Ring of Fire, home to 452 volcanoes

By National Geographic Society, adapted by Newsela staff on 04.17.19

Word Count **889**

Level **980L**

Image 1. Steam rising as lava from Kilauea flows into the Pacific Ocean in Hawaii, September 2016. Lava levels of one of the worlds most active volcanoes rose quickly and showed no signs of slowing down. Kilauea volcano in Hawaii had seen a rise in its magma chamber in recent months with its lava lake visible to all visitors to the Hawaii Volcanoes National Park. Photo by Marc Szeglat / Barcroft Media via Getty Images

The Ring of Fire is a string of volcanoes and earthquake sites around the edges of the Pacific Ocean. Roughly 90 percent of all earthquakes occur along the Ring of Fire. The ring is dotted with 75 percent of all active volcanoes on Earth.

The Ring of Fire is shaped like a 25,000-mile horseshoe and contains 452 volcanoes. These volcanoes stretch from the southern tip of South America, up along the coast of North America, over to eastern Russia, down through Japan and into New Zealand. Several volcanoes in Antarctica close the ring.

NATIONAL GEOGRAPHIC

Plate Boundaries?

The Ring of Fire is the result of huge slabs of Earth's crust called tectonic plates. The plates are constantly moving atop a layer of solid and liquid rock called the mantle. The mantle is the layer between the Earth's crust and core. Sometimes the plates that move in the mantle layer crash together, move apart or slide next to each other.

Convergent Boundaries
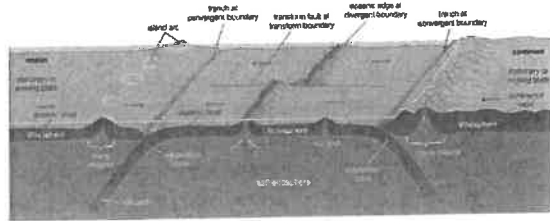
A convergent plate boundary is formed by tectonic plates crashing into each other. At these boundaries, the heavier plate can slip under the lighter plate. The dense mantle material turns into magma, or hot liquid rock. The magma rises through the crust to Earth's surface over millions of years. This creates a series of active volcanoes.

At the bottom of the Pacific Ocean, there is a series of deep ocean trenches that run parallel to volcanoes along the Ring of Fire. These create both islands and continental mountain ranges.

Divergent Boundaries

A divergent boundary is formed by tectonic plates pulling apart from each other. Magma wells up in a volcano as the old crust pulls itself in opposite directions. Then, cold seawater cools the magma, creating new crust. The upward movement and eventual cooling of this magma has created high ridges on the ocean floor.

Transform Boundaries

A transform boundary is formed as tectonic plates slide past each other. Parts of these plates get stuck at the places where they touch, causing the rock to break or slip. The plates push forward and cause earthquakes. These areas of slippage are called faults. The majority of Earth's faults can be found along transform boundaries in the Ring of Fire.

The San Andreas Fault is one of the most active faults on the Ring of Fire. It lies on the transform boundary between the North American Plate and the Pacific Plate. Measuring about 800 miles long and 10 miles deep, the fault cuts through California.
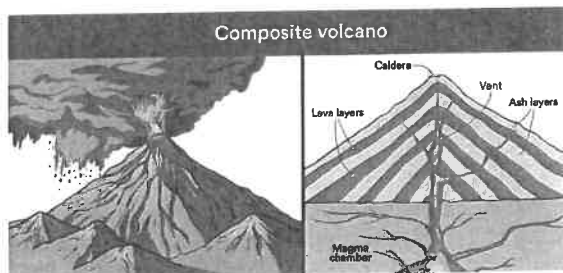
Hot Spots

The Ring of Fire is also home to hot spots, which are high-temperature areas deep inside Earth. As heat rises from a hot spot, it melts the rock above and turns it into magma. The magma often pushes through cracks in the crust to form volcanoes.

Active Volcanoes In The Ring Of Fire

Most of the active volcanoes on the Ring of Fire are found on its western edge. Krakatoa is an island volcano in Indonesia. Beneath Krakatoa, the denser Australian Plate is slipping under the Eurasian Plate. An eruption in 1883 destroyed the entire island. It sent volcanic gas, volcanic ash and rocks as high as 50 miles in the air. A new island volcano, Anak Krakatau, has been forming with minor eruptions ever since.
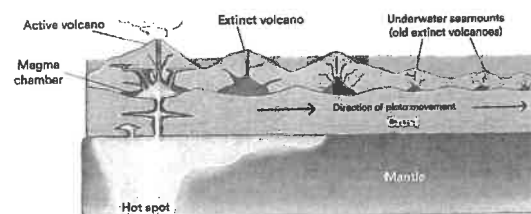
Mount Fuji is Japan's tallest and most famous mountain. It is also an active volcano. Mount Fuji sits at a "triple junction," where three tectonic plates interact.

The Ring of Fire's eastern half also has a number of active volcanic areas. Mount St. Helens is an active volcano in Washington state. It lies on a weak section of crust, which makes it more likely to erupt. Its historic 1980 eruption lasted nine hours and covered nearby areas in tons of volcanic ash.

Popocatépetl is one of the most dangerous volcanoes in the Ring of Fire. The mountain is one of Mexico's most active volcanoes, with 15 recorded eruptions since 1519. Twenty million people live close enough to Popocatépetl to be threatened by a destructive eruption.

Fast Facts:

Jolting Japan

Japan lies along the western edge of the Ring of Fire. It is one of the most tectonically active places on Earth. As much as 10 percent of the world's volcanic activity takes place in Japan.

Cooling Ring

The Pacific Plate, which drives much of the tectonic activity in the Ring of Fire, is cooling off. Scientists have discovered that the youngest parts (about 2 million years old) are cooling off and contracting at a faster rate than older parts (about 100 million years old). The younger parts of the plate are the most active parts of the Ring of Fire.

Quiz

1   What is the difference between transform and convergent boundaries?

(A)   One is located in the Pacific Ocean and one is not.

(B)   One is located in the Ring of Fire, the other is not.

(C)   One creates new crust and the other builds new islands.

(D)   One causes earthquakes and the other makes volcanoes.

2   Which section of the article highlights the idea that individual faults within the Ring of Fire can be extensive?

(A)   "Convergent Boundaries"

(B)   "Divergent Boundaries"

(C)   "Transform Boundaries"

(D)   "Hot Spots"

3   How are convergent and divergent boundaries similar?

(A)   Both involve plates pulling apart.

(B)   Both involve plates crashing together.

(C)   Both involve the rising of hot magma.

(D)   Both involve the creation of fault lines.

4   Select the sentence from the article that suggests volcanic activity in the Ring of Fire creates changes to the Earth that most people never see.

(A)   The Ring of Fire is the result of huge slabs of Earth's crust called tectonic plates.

(B)   The magma rises through the crust to Earth's surface over millions of years.

(C)   The upward movement and eventual cooling of this magma has created high ridges on the ocean floor.

(D)   The majority of Earth's faults can be found along transform boundaries in the Ring of Fire.

5   Which type of boundary is responsible for creating islands and mountain ranges?

(A)   convergent

(B)   divergent

(C)   transverse

(D)   transform

6   Read the following selection from the section "Convergent Boundaries."

> At these boundaries, the heavier plate can slip under the lighter plate. The dense mantle material turns into magma, or hot liquid rock. The magma rises through the crust to Earth's surface over millions of years.

Which word from the selection helps the reader to understand the meaning of "dense"?

(A)   heavier

(B)   under

(C)   liquid

(D)   rises

7   Which statements accurately compare Mount St. Helens and Popocatépetl?

1. *Both are active volcanoes.*
2. *Both have caused earthquakes.*
3. *Both are on the eastern edge of the Ring of Fire.*
4. *Both are located along active fault lines.*

(A)   1 and 2

(B)   1 and 3

(C)   2 and 4

(D)   3 and 4

8   Read the following sentence from the section "Cooling Ring."

Scientists have discovered that the youngest parts (about 2 million years old) are cooling off and contracting at a faster rate than older parts (about 100 million years old).

Which word, if it replaced "contracting," would CHANGE the meaning of the sentence above?

(A)   reducing

(B)   shrinking

(C)   compressing

(D)   developing

Volcano List

Volcanoes around the World:
Use the following list of volcanoes and Internet links to learn more about these volcanoes.

- **Mount Pinatubo**
  http://volcano.und.edu/vwdocs/volc_images/southeast_asia/philippines/pinatubo.html

- **Bezymianmy**
  http://volcano.und.edu/vwdocs/current_volcs/bezymianny/bezymianny.html

- **Nevado del Ruiz**
  http://volcano.und.edu/vwdocs/volc_images/img_ruiz.html

- **Erebus**
  http://volcano.und.edu/vwdocs/current_volcs/erebus/erebus.html

- **Katmai**
  http://volcano.und.edu/vwdocs/volc_images/north_america/alaska/katami.html

- **Kilauea**
  http://volcano.und.edu/vwdocs/volc_images/north_america/hawaii/kilauea.html

- **Krakatau**
  http://volcano.und.edu/vwdocs/volc_images/southeast_asia/indonesia/krakatau.html

- **La Palma**
  http://volcano.und.edu/vwdocs/volc_images/africa/lapalma.html

- **Kelut**
  http://volcano.und.edu/vwdocs/volc_images/southeast_asia/indonesia/kelut.html

- **Mt. Etna**
  http://volcano.und.edu/vwdocs/volc_images/img_etna.html

- **Mt. Fuji**
  http://volcano.und.edu/vwdocs/volc_images/img_fuji.html

- **Mt. Pelée**
  http://volcano.und.edu/vwdocs/volc_images/img_mt_pelee.html

- **Mt. Rainier**
  http://volcano.und.edu/vwdocs/volc_images/img_rainier.html

- **Mount St. Helens**
  http://volcano.und.edu/vwdocs/volc_images/img_st_helens.html

- **Montserrat**
  http://volcano.und.edu/vwdocs/current_volcs/montserrat/montserrat.html

- **Popocatepetl**
  http://volcano.und.edu/vwdocs/volc_images/north_america/mexico/popocatepetl.html

- **Mount Vesuvius**
  http://volcano.und.edu/vwdocs/volc_images/img_vesuvius.html
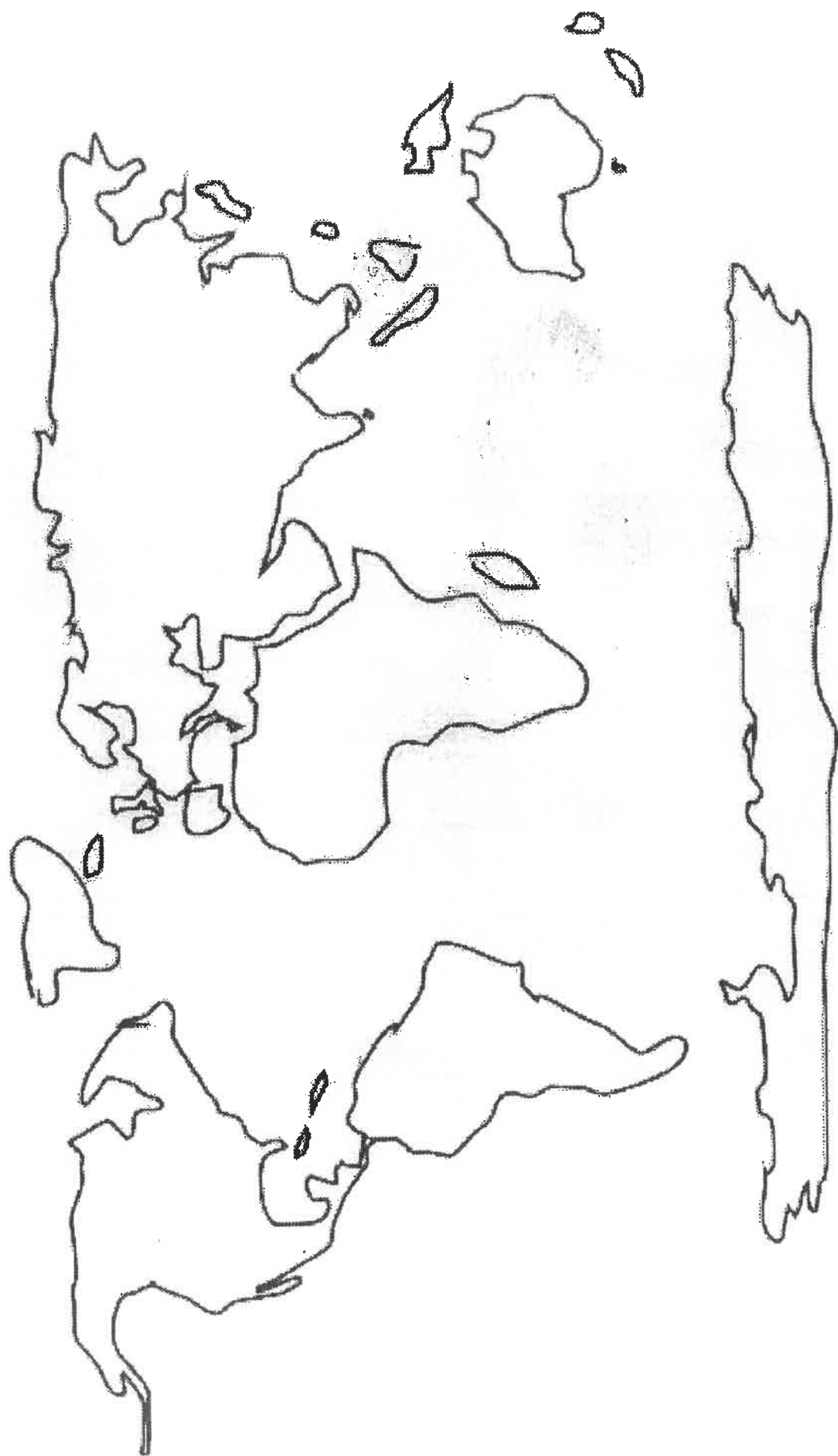
Great shakes! Six-story building withstands quake test in San Diego

By Associated Press, adapted by Newsela staff on 06.23.16

Word Count **501**

Level **1050L**

University of California, San Diego structural engineering professor Tara Hutchinson stands in front of a six-story building that is undergoing a series of earthquake tests on a giant shake table, to see how the steel frame structure would fare in a major temblor, in San Diego, California, June 15, 2016. AP Photo/Julie Watson

SAN DIEGO, Calif. — Researchers at the University of California, San Diego rocked and rattled a six-story steel frame on a giant shake table Wednesday. They wanted to see if the building could survive a major earthquake.

The towering structure jolted, shuddered and let out a hollow, grinding sound but remained standing. Drones, tiny unmanned aircraft equipped with cameras, peeked in its windows. The water heaters and at least some of the flat-screen TVs seemed to remain in place. However, researchers still need to review the drone footage to see exactly how the building held up inside and out.

The event imitated the magnitude-6.7 Northridge earthquake. That quake caused heavy damage to the Los Angeles area in 1994.

The test is one of several to determine the strength and security of the lightweight steel structure. If it passes the tests, it may eventually replace wood frames in tall, residential buildings. The material might provide a better option for earthquake-prone areas like California.

It Even Had Water Heaters And Stoves

The structure was designed to replicate an apartment building. It is equipped with appliances, such as water heaters and stoves, which could potentially start a fire during an earthquake. At six stories high, it is the tallest building of its kind to ever undergo these kinds of tests.

Over the next few weeks, the building will experience more intense fake earthquakes. The shake table will reproduce a magnitude-7.2 earthquake that struck California in 1992 and a magnitude-8.8 earthquake that hit Chile in 2010.

Later, researchers will set rooms on fire to test how the frame holds up.

Scientists, engineers, earthquake safety experts and news reporters witnessed the tests Wednesday. Small drones flew in and around the building to map the building and record the damage. More than 250 sensors, more than 40 video cameras, and a GPS system also gathered information.

Drones Have A Mission

Researchers also want to test the usefulness of drones equipped with cameras that can detect heat. They think these drones could help find survivors and record damage after earthquakes and the fires that often follow them.

As part of the tests, researchers will use pans of liquid fuel to light fires on two floors. The flames will reach temperatures as high as 2,000 degrees Fahrenheit. With temperature measuring equipment and video cameras, the researchers will study how earthquake damage affects fire protection systems.

The engineers expect the building to do well in all the tests, in part because it is lighter than a concrete building of the same height. As a result, the steel building is less rigid. It is more likely to move with the shaking rather than resist it.

Huge Challenge Ahead

At the end of the testing, the building will experience its biggest challenge yet. It will undergo a pretend earthquake that is stronger than what the structure was designed to withstand.

Until now, the largest building to be tested on a giant shake table was a two-story structure in 2013.

Quiz

1   Select the paragraph from the section "It Even Had Water Heaters And Stoves" that explains how the test structure was created.

2   Which section of the article BEST explains why steel is better for earthquakes than concrete?

   (A)   Introduction [paragraphs 1-4]

   (B)   "It Even Had Water Heaters And Stoves"

   (C)   "Drones Have A Mission"

   (D)   "Huge Challenge Ahead"

3   Read this sentence from the introduction [paragraphs 1-4].

   The towering structure jolted, shuddered and let out a hollow, grinding sound but remained standing.

   How does using the words "jolted" and "shuddered" affect the tone of the sentence above?

   (A)   They make the sentence less dramatic.

   (B)   They give the sentence a sense of action.

   (C)   They give the sentence a sense of calm.

   (D)   They make the sentence more scholarly.

4   Read the sentence from the introduction [paragraphs 1-4].

   Drones, tiny unmanned aircraft equipped with cameras, peeked in its windows.

   Which option is the BEST definition of the word "equipped" as used in the sentence?

   (A)   to come with batteries

   (B)   to be very useful

   (C)   to be full of gadgets

   (D)   to come with useful items

Q1. Most earthquakes occur

A. at plate boundaries

B. in the mantle

C. in plate interiors

D. at zones where there is little stress on rocks

Q2. Which seismic wave reaches seismographs first?

A. P waves

B. S waves

C. surface waves

D. it depends on the distance between earthquake and seismograph

Q3. Which type of seismic wave does not propagate through fluids?

A. P waves

B. S waves

C. surface waves

D. all seismic waves travel through water

Q4. The distance to an earthquake epicenter is determined by

A measuring the amplitude of the largest P wave

B. measuring the amplitude of the largest S wave

C. measuring the travel time of P waves

D. measuring the time delay between arrival of P and S waves

Q5. P waves shake rock by

A. twisting the rock

B. shearing the rock in a direction perpendicular to wave travel

C. compressing and expanding the rock in the direction of wave travel

D. shearing the rock in a wave-like motion

Q6. Which of the following regions is characterized by intraplate earthquakes?

A. Japan

B. southern California

C. New Madrid, Missouri

D. Tibet

Q7. Going up one whole unit on the Richter scale represents

A. a 10-fold increase in energy release

B. a 30-fold increase in energy release

C. a 10-fold increase in damage done by the quake

D. a 10-fold increase in P wave amplitude

Answers

A1. Most earthquakes occur

A. at plate boundaries

B. in the mantle

C. in plate interiors

D. at zones where there is little stress on rocks

Answer: A

Geology of the deep: the ecosystems created by volcanoes

By National Geographic Society, adapted by Newsela staff on 03.04.20

Word Count **871**

Level **820L**

Image 1. A volcanic eruption in the South Pacific Ocean created a new island in Tonga. This unnamed land mass is the newest island on Earth and is already home to a small number of plants and animals. Photo: Edwina Pickles/The Sydney Morning Herald/Fairfax Media via Getty Images

From Hawaii to Indonesia to Iceland, hundreds of islands have been formed by submarine volcanoes. These volcanoes are exactly what they sound like. They are volcanoes located beneath the surface of the ocean.

Submarine volcanoes erupt into water instead of air. For this reason, they behave quite differently than volcanoes on land. For example, it is uncommon for submarine volcanoes to have explosive eruptions. The weight of the water above them creates very high pressure. Instead of explosive eruptions, the volcanoes usually produce passive lava flows. The lava leaks out along the seafloor. Most submarine eruptions do not disturb the ocean surface.

NATIONAL GEOGRAPHIC

Studying Submarine Volcanoes

Charles Mandeville is a scientist. He works for the Volcano Hazards Program of the United States Geological Survey (USGS). He and his fellow scientists monitor all 169 active volcanoes in the United States. Before he joined USGS, Mandeville studied submarine volcanoes. He became an expert on the famous 1883 eruption of the island of Krakatoa in Indonesia.

Mandeville says there are two main factors that contribute to submarine volcanoes forming islands. One is the supply of magma, or melted rock beneath Earth's crust. The other is tectonic activity. Earth's top layers are the crust and the mantle. They are divided into 15 major tectonic "plates" that cover the planet's surface. These plates are always moving very slowly. Magma sometimes rises up through the gaps between them.

Most volcanic islands are created by passive lava flows on the seafloor. These flows cool and harden into rock. Over millions of years, they build up the height of underwater mountains. Some of these underwater mountains eventually form islands.

Volcanic Island Ecosystems

Formed from nothing but rock, volcanic islands have surprisingly lively ecosystems.

These ecosystems evolve over millions of years, along with the island itself. Life on volcanic islands starts with tiny organisms called bacteria. They are the most basic forms of life.

Species from nearby landforms also contribute to the developing ecosystem. Passing birds might stop to nest on the new island. They might bring seeds from the mainland or other islands. Plant life can float through the ocean to end up on the island's shores.

Since they evolve in such an isolated environment, many organisms are considered to be endemic species. That means they are native to a particular area. The finches endemic to the Galapagos Islands are one famous example of this. These birds are found only in the isolated Galapagos. The Hawaiian Islands are even more isolated. They have more than 1,000 endemic plant species.

World's Youngest Island

One of the world's newest volcanic islands is part of the island nation of Tonga. Tonga is a collection of 170 volcanic islands. They are located in the South Pacific Ocean. After an explosive eruption in 2009, a new landmass formed. The eruption covered the nearby island of Hunga Ha'apai in black, volcanic ash.

Days later, there was a second, smaller eruption between Hunga Ha'apai and the new landmass. It combined with rock from the first eruption to fill the space between the two. The result was a single landmass. It was nearly double the original size of Hunga Ha'apai.
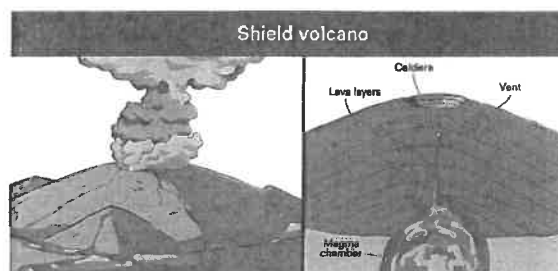
Before the eruption, Hunga Ha'apai had rich plant and animal life. The ash devastated its ecosystem. It is unclear whether larger life forms will return to the newly expanded island.

It is also unclear if the island itself will remain. "The wind and the waves are constantly trying to erode that island back below sea level," Mandeville says. New lava flows will be needed to restore the land.

Increasing the height of the island above sea level is critical. It will allow birds from nearby islands to "seed the new island with life," Mandeville says.

In the years since the eruption, the young island has maintained itself above sea level. However, it has not grown significantly. The island is still attached to Hunga Ha'apai and is in the very early stages of developing an ecosystem. Other submarine volcanoes near Tonga remain active.
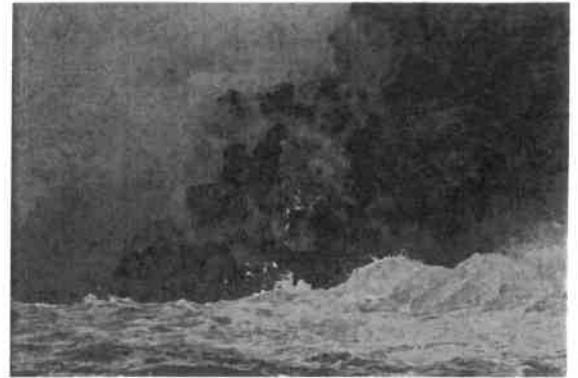
Fast Facts:

Heat Wave

Autotrophic bacteria are tiny organisms that produce their own food. A large number of them live near submarine volcanoes. These bacteria are considered chemosynthetic. That means they produce food from chemical reactions usually involving carbon dioxide, oxygen or hydrogen. Scientists have identified some bacteria that can survive in extreme temperatures.

Survival Mode

Charles Mandeville of the USGS Volcano Hazards Program says: "The wind and the waves are constantly trying to erode that island back below sea level." Only one thing can stop the island from disappearing. New lava flows must restore the land that has been worn away.

URL: https://www.nationalgeographic.org/news/geology-deep/

Quiz

1 What happened to the ecosystem on Hunga Ha'apai?

   (A)   Floods from a hurricane killed many animals.

   (B)   The island has gotten smaller from the waves.

   (C)   The island has gotten smaller from the eruption.

   (D)   Ash from a nearby eruption killed many animals.

2 How do submarine volcanoes form? How do you know?

   (A)   Submarine volcanoes are produced by lava flows deep in the ocean. "Most volcanic islands are created
          by passive lava flows on the seafloor."

   (B)   Submarine volcanoes develop after big explosions destroy another nearby island. "After an explosive
          eruption in 2009, a new landmass formed."

   (C)   Submarine volcanoes form from islands that have been worn away. "New lava flows must restore the
          land that has been worn away."

   (D)   Submarine volcanoes begin to grow from tiny organisms. "Life on volcanic islands starts with tiny
          organisms called bacteria."

3 Which organisms survive well on volcanic islands?

   1. bacteria
   2. birds
   3. plants
   4. large animals

   (A)   1, 2 and 3

   (B)   2, 3 and 4

   (C)   1, 3 and 4

   (D)   1, 2 and 4

4 Read the section "Studying Submarine Volcanoes."

   Which sentence from the section shows WHY volcanic activity occurs along tectonic plates?

   (A)   Earth's top layers are the crust and the mantle.

   (B)   They are divided into 15 major tectonic "plates" that cover the planet's surface.

   (C)   Magma sometimes rises up through the gaps between them.

   (D)   These flows cool and harden into rock.

5 Why do some volcanic islands get smaller?

   (A)   Older islands sink into the sea.

   (B)   Wind and waves wear the island down.

   (C)   Storms push the tops off of some islands.

   (D)   The heat from the lava melts part of the island.

6   What effect did the volcanic eruption in Tonga have on Hunga Ha'apai?

        (A)   It eroded the island all the way down to sea level.

        (B)   It increased the island's height and it is now the tallest island.

        (C)   It destroyed all life forms and only large animals will return.

        (D)   It caused major damage to the island's ecosystem.

7   How are submarine volcanoes different than land volcanoes?

        (A)   Submarine volcanoes erupt underwater.

        (B)   Submarine volcanoes do not release magma.

        (C)   Submarine volcanoes create new landforms.

        (D)   Submarine volcanoes do not form from plate movement.

8   According to the section "Volcanic Island Ecosystems," how do nearby landforms HELP the development of new volcanic islands?

        (A)   Nearby landforms do not have an effect on new volcanic islands because life will not grow there for millions of years.

        (B)   Tiny organisms from nearby landforms jump to the new volcanic islands and begin to grow ecosystems rapidly.

        (C)   Animals from nearby landforms can bring seeds and their plants can float over to the new island.

        (D)   Nearby landforms send their endemic species but they have trouble surviving on the new volcanic island.

Name_____

Plate Tectonics Worksheet

Label each figure by writing the type of plate boundary it shows.
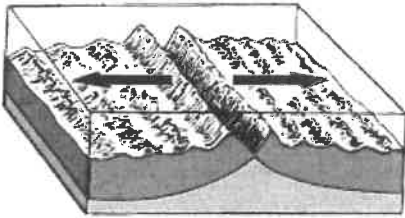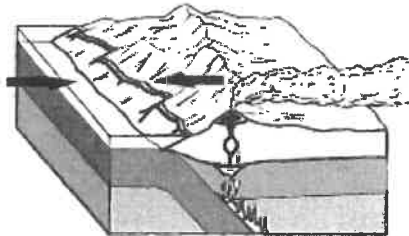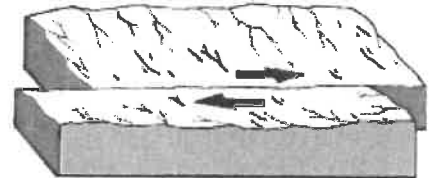
1. _____   **2.** _____   **3.** _____

4. In your own words, state the theory of plate tectonics?

5. Describe what happens when two plates carrying oceanic crust collide.

6. Describe what happens when two plates carrying continental crust collide

7. Describe what happens when a plate carrying oceanic crust collides with a plate carrying continental crust.

8. Explain what force caused the movement of the continents from one supercontinent to their present positions.

9. A scientific _____ is a well-tested concept that explains a wide range of observations.

10. Breaks in Earth's crust where rocks have slipped past each other are called _____.

11. The lithosphere is broken into separate sections called _____.

12. A(n) _____ is a deep valley on land that forms along a divergent boundary.

13. The geological theory that states that pieces of Earth's crust are in constant, slow motion is called _____.

Australian wildfires pumped smoke to record heights

By Science News for Students, adapted by Newsela staff on 08.11.20
Word Count **576**
Level **870L**
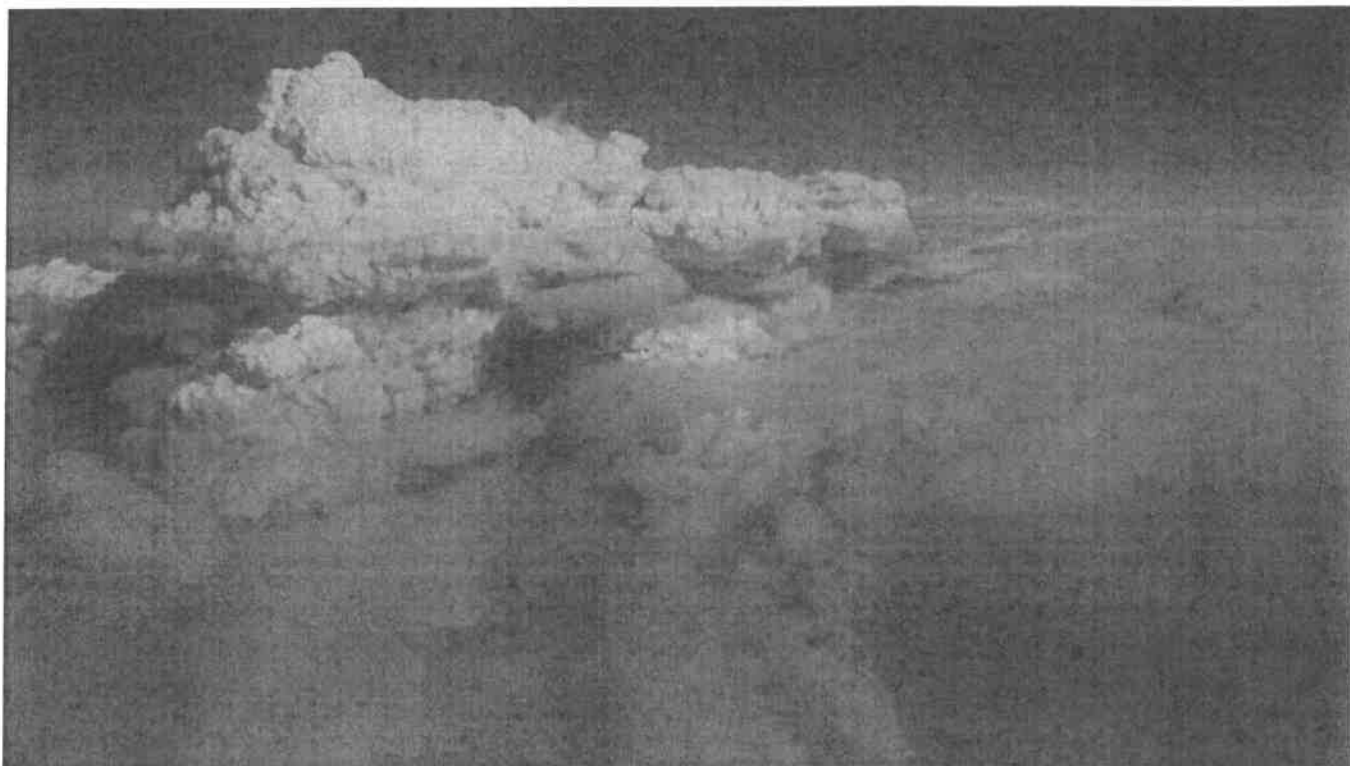
Australia's most recent bushfire season sparked the formation of pyrocumulonimbus clouds (one pictured). These clouds injected unprecedented amounts of smoke into Earth's atmosphere. One long-lasting plume reached a record height. Photo: Eigenes Werk/Wikimedia

Devastating bushfires spread through Australia in the summer of 2019 to 2020. The fires were so bad that smoke from the fires reached new heights in the atmosphere. The atmosphere is the envelope of gases surrounding Earth, or another planet. And at times, this elevated smoke behaved in a way scientists have not seen before.

The bushfires that took place between December and January made huge thunderclouds. Scientists described these as pyrocumulonimbus, which is pronounced PY-roh-kew-myu-lo-NIM-bus. This is a huge thunderstorm caused by the smoke and heat of enormous fires. The heat that drives it can work like a chimney to pull the smoke high into Earth's stratosphere. It can last there for weeks or months. The stratosphere is the second layer of the Earth's atmosphere. It is just above the troposphere, or ground layer.

The clouds drew between 300,000 and 900,000 metric tons of smoke into the stratosphere. This is more smoke than seen from any previous bushfire. This weather event opened up a whole new area of scientific study. In May, researchers reported their findings on the smoke in the Geophysical Research Letters journal.

As winds whirled one giant smoke plume around, it rose to record heights. A plume is the movement of gas or liquid. It can happen under the direction of gravity, winds or currents. This vast puff of smoke spanned roughly 1,000 kilometres (620 miles). That's about as wide as South Australia.

The smoke didn't mix with the air around it for months after it formed. This may be because the plume was shielded by the winds that whirled around it, the scientists say. They are still trying to figure out what caused the wind event.

Another interesting thing was how high the smoke rose, notes George "Pat" Kablick, a scientist at the U.S. Naval Research Laboratory in Washington, D.C. He says heat from the sun caused the plume to rise. In a matter of weeks, it climbed from about 15 kilometres (9 miles) off the ground to more than 31 kilometres (19.2 miles) high.

The rising plume lifted up record amounts of water and carbon monoxide, which is a toxic gas. It also pushed away ozone-rich air. Scientists are worried that this smoke could cause chemical reactions that destroy or damage the ozone. The ozone is a layer in Earth's stratosphere. It protects Earth from the sun's harmful radiation.

In the future, scientists could use satellites or weather balloons. This could provide data on any chemical reactions. Observing the plume's behaviour may also help scientists picture what could happen if even more smoke were pumped into the atmosphere. It could happen again if there was another big bushfire. Or, while far less likely, if there was a nuclear war.

Alan Robock is a climate scientist at Rutgers University in New Jersey. He say scientists studied smoke released by wildfires in the north-western United States in 2017. The study helped confirm computer models of nuclear warfare. Those models predicted that smoke from burning cities would heat up in the stratosphere. If the heated smoke rose high enough, it could last for years. It would become a real threat to the ozone layer.

"We called that [2017 event] 'the mother of all pyrocumulonimbus,'" Robock says. It just sent so much smoke into the stratosphere. The Australian smoke plume was larger than the smoke from the 2017 U.S fires. And it rose higher still, he says, which suggests the computer projections are correct.

Quiz

1   Which sentence from the article shows WHY smoke from large brushfires reaches extreme heights?

    (A)   The fires were so bad that smoke from the fires reached new heights in the atmosphere.

    (B)   The heat that drives it can work like a chimney to pull the smoke high into Earth's stratosphere.

    (C)   The clouds drew between 300,000 and 900,000 metric tons of smoke into the stratosphere.

    (D)   The rising plume lifted up record amounts of water and carbon monoxide, which is a toxic gas.

2   Which sentence from the article supports the conclusion that the smoke clouds from Australian brushfires were unlike any scientists had seen before?

    (A)   The bushfires that took place between December and January made huge thunderclouds.

    (B)   This weather event opened up a whole new area of scientific study.

    (C)   In the future, scientists could use satellites or weather balloons.

    (D)   "We called that [2017 event] 'the mother of all pyrocumulonimbus,'" Robock says.

3   WHY did scientists feel worried after observing the Australian smoke plume?

    (A)   They were unsure how it grew to be so large or reached so high into the atmosphere.

    (B)   They thought it might further support computer models showing the effects of nuclear warfare.

    (C)   They were unsure how to break up the cloud or prevent other wildfires from happening.

    (D)   They thought it might damage the layer of stratosphere that protects the Earth from harmful radiation.

4   What is the relationship between the stratosphere and the troposphere?

    (A)   They are both layers of the Earth's atmosphere.

    (B)   The stratosphere is a layer of the troposphere.

    (C)   They are both located above the Earth's atmosphere.

    (D)   The troposphere is a layer of the stratosphere.

9.3 Natural and human impacts

Natural events such as fire, flood and drought can damage ecosystems, but there can be benefits for ecosystems too. Humans also affect some ecosystems in positive and negative ways. However, humans are a major threat to many ecosystems on Earth.

science 4 fun

Plants and fire

Would some plants survive a fire better than others?

Collect this ...
- hand lens or magnifying glass
- digital camera or mobile phone with a camera
- large plastic bag

Do this ...
1. Find an area at home, in a local park or in part of the school grounds where there are many different plants, ranging from trees to low shrubs.
2. Observe the features of at least five different plants that you think could be affected differently by a fire. Look at features such as leaf position and structure, bark thickness and structure, branch height, seed cases, dead leaves and branches, and any other features that look relevant.
3. Take a photo of each plant and try to find out its common or scientific name. If you can't name it, at least record the type of plant. If possible, collect some parts (such as the bark) of the plant that you think could affect its fire resistance.

Record this ...
1. Describe the features of each plant, in a table.
2. Explain why you think the features would be helpful or not helpful to the plant in surviving fire.
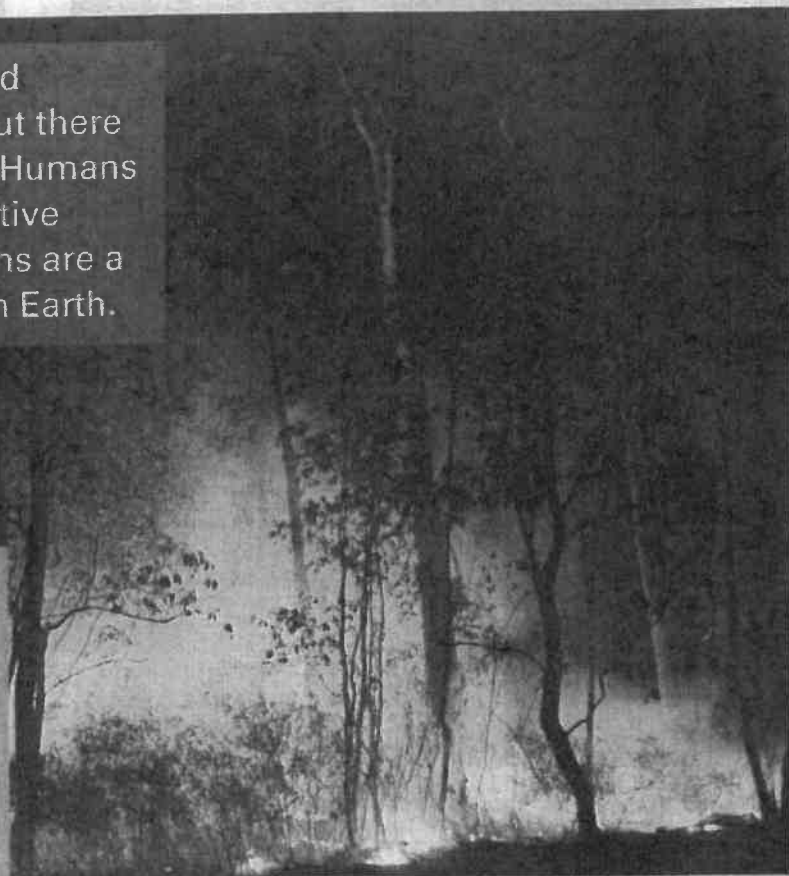
Change due to natural events

Natural events affect ecosystems. For example, seasonal changes affect the organisms of a community because they are influenced by abiotic factors such as changes in rainfall, temperature and the amount of available light. Other natural events, such as bushfires, drought and flooding, also have huge impact on ecosystems.

Bushfires

Bushfires are a common event in Australia and they burn though natural vegetation, plantations and towns. Some are lit accidentally by humans while others are lit on purpose by arsonists. Other bushfires are caused by lightning strikes. Evidence suggests that natural fires have been affecting ecosystems in Australia for over 40 million years, while humans have probably only lived here for around 40 000 years.

Fire has a major impact on ecosystems in Australia because it promotes the germination of many plant species. After a fire, much of the bush regenerates through germination. Many plants are adapted to survive fires and even benefit from fire. Plants such as banksias and hakeas need fire to allow their seed cases to open and release the seeds (Figure 9.3.1). Grass trees and some orchids flower after a fire.

FIGURE 9.3.1 A bushfire has caused the seed cases of this banksia to open up and drop their seeds. Other plant species will do the same.

Eucalypts have oils in their leaves that catch fire easily (Figure 9.3.2). Some also have 'stringy' bark that hangs down to the ground, as in Figure 9.3.3. There is a lot of plant litter that falls to the ground, such as dead leaves and bark. These may seem like strange features for a plant to have in an area where bushfires occur. However, helping a fire to spread probably provides an advantage to eucalypts. After a fire, eucalypts can quickly regenerate, whereas other plants may not. This gives eucalypts a competitive advantage in fire-prone areas.
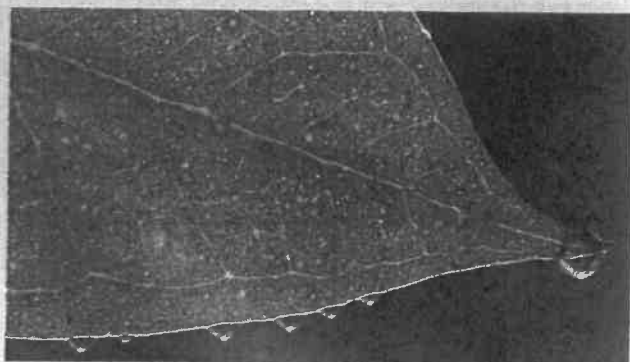
FIGURE 9.3.2 Eucalyptus leaves catch fire easily because they have glands that make oils. All the light-coloured dots on this leaf are oil glands.

FIGURE 9.3.3 The bark on this Blue Mountains Ash is stringy and allows fire to rise up the trunk and into the tree.

Eucalypts are adapted to survive fires in several ways. Thick bark insulates the living cells beneath it against the heat of the fire and so keeps the growing part of the trunk and branches alive. After a fire, new growth sprouts from the trunk and branches. All the leaves may have died, so new ones must grow to allow the plant to begin photosynthesising again. This growth is known as epicormic growth (Figure 9.3.4). The new growth of shoots allows the plants to quickly produce food and gain an advantage over other plant species that were killed and rely on seeds to regenerate.

FIGURE 9.3.4 After a bushfire, burnt eucalypts sprout new leaves from their trunk— they undergo epicormic growth

The many effects of flooding

By National Geographic Society, adapted by Newsela staff on 05.07.20

Word Count **788**

Level **960L**

Image 1. A residential area flooded by the Ohio River during the flood of 1997 in Utica, Indiana. Floods can be destructive to humans and the environment; however, they are also essential to many ecosystems. Photo: Adam Jones/Science Source tk

For centuries, humans have relied on rivers for food, fresh water and land for growing crops. While water is essential to life, however, it can also be destructive. In many cases, the flooding of rivers can have terrible effects.

NATIONAL GEOGRAPHIC

The Most Common Natural Disaster

Flooding is the most common natural disaster, and the results are often deadly. The central China flood of 1931, for example, was one of the worst flooding events in recorded history. The Yangtze and Huai rivers broke their banks, killing about 3.7 million people. The aftereffects were terrible, too. The flood waters carried deadly diseases, and the people who survived the initial flood struggled to find food.

We are used to hearing about the way that floods affect humans, but floods affect the environment, too. The results are not always bad, however. In fact, some ecosystems even rely on flooding each

season.

Drowning, Erosion, Sedimentation

Flooding can harm wildlife. Floods can spread disease, drown animals and destroy habitats. In 2012, hundreds of animals were killed in floods in eastern India.

Flood waters can also change the landscape. For example, they wear away riverbanks in a process called erosion and cause them to collapse. Flood waters carry materials like dirt and mud from the riverbanks. Known as sediment, these particles can damage the water quality and lead to overgrowth of harmful water plants.

The sediment eventually settles out of the water in places like the bottom of a river or stream. This process is called sedimentation. It can clog riverbeds and streams, kill water-dwelling organisms and destroy habitats.

Pollution, Disease

Flood water can be contaminated with pollutants such as garbage, sewage, chemicals, and pest-killing pesticides. If contaminated flood water enters the ocean it can affect the quality of the water and may also harm delicate ocean ecosystems such as coral reefs. When polluted water filled Australia's Great Barrier Reef in February 2019, scientists worried about these things.

Floods can lead to outbreaks of diseases. Hepatitis A and cholera are deadly diseases that are spread through contaminated water, and cases of these illnesses increase after floods. Malaria is another disease that can emerge following a flood. That is because mosquitos breed in pools of standing water, and often pools are left behind after a flood.

Rich Soil, Groundwater Supplies

While floods can be devastating, they can also give new life to ecosystems. Floods carry important nutrients to the surrounding land. When the water dries up, it leaves sediment and nutrients behind on the ground. This rich, natural fertilizer improves soil quality and encourages plants to grow.

Ancient civilizations thrived along seasonally flooded rivers because they provided fertile soil for farmland. The ancient Egyptians, for example, relied on the seasonal floods of the Nile River.

Floods can refill underground water sources. Flood water gets absorbed into the ground and then drips through layers of soil and rock. Eventually, the water reaches underground bodies of water called aquifers. These aquifers supply clean, freshwater to springs, wells, lakes, and rivers.

During dry spells, this groundwater may be the only supply of freshwater available. A good supply of groundwater improves soil health. It also leads to more productive crop and pasture lands.

Animal Breeding And Migration

Floods can trigger some organisms to breed or migrate. In 2016, thousands of water birds flocked to the Macquarie Marshes in Australia. Flooding had filled their wetland habitat for the first time in years. This triggered a mass breeding, or mating, event.

In the Southeast Asian country of Cambodia, rains cause a yearly flood on the Mekong River. When the flood waters enter the Tonle Sap Lake, it is a signal to the fish. They begin to migrate down the river.

Small seasonal floods can be good for fish. Floods deposit sediment on river beds, providing a place for baby fish to grow. Nutrients carried by flood water can support aquatic food webs.

Many Animals Rely On Wetlands

Wetlands are extremely important ecosystems. These ecosystems contain marshes and swamps. About 40 percent of the world's species rely on wetlands. The Okavango Delta in Africa is one of the world's largest, most important wetland habitats. The river captures rainfall from far away highlands, which causes a flood that replenishes the wetlands during the dry season.

Floods are a force of nature, and they have positive and negative consequences on the ecosystems they affect. Floods can be destructive to humans and the natural environment. However, they are also essential to the many ecosystems.

Quiz

1   Which statement is a CENTRAL idea of the article?

    (A)   Flooding was responsible for the deaths of 3.7 million people in central China.

    (B)   Floods can have both positive and negative effects on people and the environment.

    (C)   Floods can have a negative impact on the healthy development of coral reefs.

    (D)   Seasonal floods of the Nile River helped the ancient Egyptians to survive.

2   Which sentence from the article would be MOST important to include in a summary of the article?

    (A)   The flood waters carried deadly diseases, and the people who survived the initial flood struggled to find food.

    (B)   We are used to hearing about the way that floods affect humans, but floods affect the environment, too.

    (C)   In the Southeast Asian country of Cambodia, rains cause a yearly flood on the Mekong River.

    (D)   The Okavango Delta in Africa is one of the world's largest, most important wetland habitats.

3   Read the section Drowning, Erosion, Sedimentation."

How does this section contribute to the article's MAIN idea?

    (A)   It provides additional evidence that flooding can harm the environment.

    (B)   It explains how flooding is responsible for the spread of malaria.

    (C)   It introduces the idea that flooding can cause changes to the landscape.

    (D)   It shows that the ocean can be negatively affected by polluted flood waters.

4   Read the section "Rich Soil, Groundwater Supplies."

What does this section explain that other sections DO NOT?

    (A)   how floods affected ancient civilizations

    (B)   how floods can be beneficial to agriculture

    (C)   how floods affect the migration of animals

    (D)   how floods can replenish water in ecosystems

Name_____

Types of Plate Boundaries

Type of Boundary	Direction of Movement	Sketch of Boundary	Description of Plate Boundary	Features of Plate Boundary	Examples
Divergent (continental/continental)					
Divergent (oceanic/oceanic)					
Transform					
Convergent (oceanic/continental)					
Convergent (oceanic/oceanic)					
Convergent (continental/continental)					

≋USGS

Volcano pattern

use Tall Adjusted

Glue

Lava flow

Ash layers

Stratovolcano

Stratovolcanoes are built up of alternating layers of lava flows and ash.

completed model volcano

folded pattern

cut-out pattern

If you want to color the model, do so before you cut it out. Cut out the paper volcano pattern by cutting along all the outside lines of the pattern as shown in the diagrams. Fold the side faces outward. Try the pieces for fit before applying glue or tape. Glue or tape the tabs indicated. Your completed model should look like the drawing on the front cover of this report.

U. S. Geological Survey
Open-File Report 91-115
Alpha and Gordon

Railroad

Town

Park

School

Stream

Road

Farm

Glue

Glue

The Learning Web

Teaching in The Learning Web : Changing World | Working With Maps | **Earth Hazards**
About | Other Sites

http://www.usgs.gov/education/learnweb/volcano.html updated 08/24/1998

Scientists say volcano, not giant bears, formed Devils Tower in Wyoming

By Scientific American, adapted by Newsela staff on 03.19.15

Word Count **685**

Level **860L**
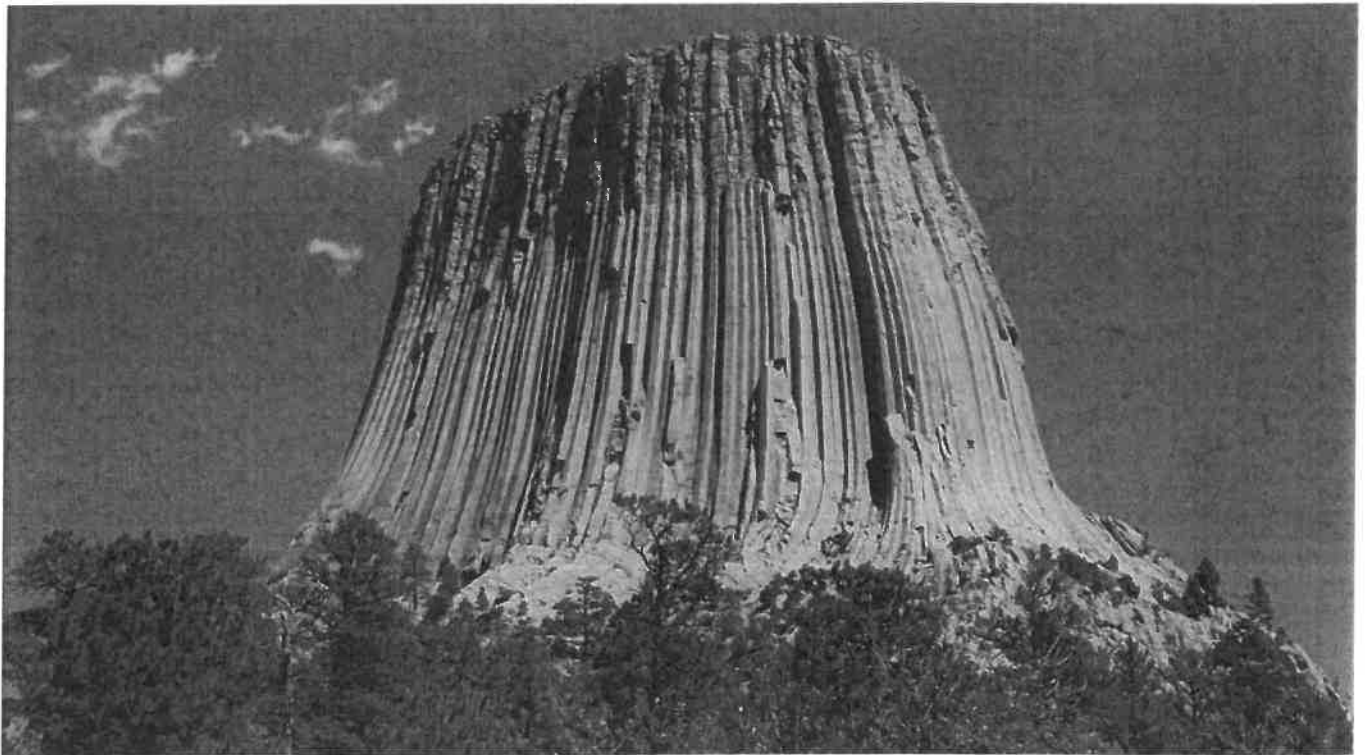
A view of Devils Tower. Wikimedia Commons

Devils Tower in Wyoming is sacred to Native Americans. They believe that giant bears scratched the mysterious looking rock formation trying to climb to the top.

Scientists have a different view. They say the long lines along the sides of Devils Tower are not claw marks. The lines are actually the edges of columns of igneous — or volcanic — rock. The columns formed over many years. As the lava cooled and shrank, it cracked apart.

Illustration of a maar-diatreme eruption with the portion of the lava dome representing Devils Tower shown in dark gray. Credit: Modified from Závada, Dĕdeček, Lexa, and Keller. *Geosphere*

49 Million Years Ago

How did the columns of Devils Tower form? Was it below the ground or as part of a violent volcanic eruption?

Many theories have been suggested over the years. The most popular theories today are that Devils Tower was born 49 million years ago as a rising half dome of lava. The lava was squeezed to the surface between underground layers of rock or deep inside a volcano. Devils Tower stands nearly 390 meters tall, about 1,300 feet.

Prokop Závada is a geologist at The Czech Academy of Sciences in Europe. He and three other researchers became interested in the mystery of Devils Tower. Geologists study rocks and how the Earth was formed. They found a clue in another butte in the Czech Republic, a country located in Eastern Europe. A butte is a hill with steep sides and a flat top. The butte in the Czech Republic is called Boren. It is similar to Devils Tower, although it is more rounded and covered with trees.

Volcano Called A Maar-Diatreme

The researchers concluded that Boren was created by a sudden type of volcano called a maar-diatreme. In this kind of volcano, underground lava touches water. The lava blasts a crater on the Earth's surface. After the blast, the researchers think, a flat dome of lava filled the crater, acting like a plug. Wind and rain chipped away at the edges of that dome. Eventually only its core remained, the butte called Boren.

Devils Tower is very similar to Boren. Because of this, the Czech team decided to see if it was formed in the same way.

The researchers looked at the two main characteristics of Devils Tower. The first was the shape of its columns. The second was the position of magnetic minerals within the columns.

Taking A Sample, Building Models

The National Park Service is in charge of Devils Tower. It let the researchers collect one rock sample from the rock formation. The researchers discovered that near the rock's base, tiny needle-shaped minerals are just about vertical, or up and down. That is the direction the lava flowed before it hardened. Closer to the top, the minerals turn horizontal, or onto the side.

Next, the researchers made models of volcanic explosions. They mixed some tiny magnetic particles into soft plaster. Then they squeezed the material upward through a cone full of earth and rock until it formed a mound on the surface.

Computer simulation of a cooling body of lava shaped like one of the plaster models. The thin, solid black lines indicate the shape of the columns that would form. A profile of Devils Tower is overlain, in white. Credit: Modified from Závada, Dědeček, Lexa, and Keller. *Geosphere*

When the plaster hardened, the researchers cut the cone open. They examined the insides. They measured which way the magnetic particles faced just as they had done at Devils Tower. They also made computer models of cooling volcanic rock. They compared columns of lava as they cooled under different conditions.

Does The Answer Bear Up?

The vertical columns of Devils Tower matched the pattern exactly. Závada and his team concluded that Devils Tower was also caused by an underground volcano.

Bernard Housen, of Western Washington University, was not involved in the study. He said their work was "interesting" and made sense. However, he was not convinced it was the only answer. He said there just is not enough information from Devils Tower itself since the government will not let them take many samples. "So, it is likely that the origin of Devils Tower will remain uncertain," he said. One reason for that is because the government wants to make sure Devils Tower is preserved, Housen said.

It might be possible to study the similar, if less dramatic, buttes near Devils Tower. They were likely formed in the same way — with or without the help of giant bears.

Quiz

1   What is the main idea of the section "49 Million Years Ago"?

   (A)   Scientists think that Devils Tower is 49 million years old, but that a butte in Europe is older.

   (B)   Scientists think Devils Tower is 49 million years old, but they are not sure.

   (C)   Scientists think that Devils Tower was created 49 million years ago as a result of a volcano explosion.

   (D)   Scientists believe that 49 million years ago there were no rock formations like Devils Tower.

2   Which sentence from the article contains an idea that would be MOST important to include in a summary of the article?

   (A)   Many theories have been suggested over the years. The most popular theories today are that Devils Tower was born 49 million years ago as a rising half dome of lava.

   (B)   Prokop Závada is a geologist at The Czech Academy of Sciences in Europe. He and three other researchers became interested in the mystery of Devils Tower.

   (C)   The researchers concluded that Boren was created by a sudden type of volcano called a maar-diatreme. In this kind of volcano, underground lava touches water.

   (D)   The researchers looked at the two main characteristics of Devils Tower. The first was the shape of its columns. The second was the position of magnetic minerals within the columns.

3   Why does the article include the pictures labeled A and B?

   (A)   to show how a type of volcano explosion might have caused Devils Tower to form

   (B)   to show how a volcano explosion looks different from Devils Tower

   (C)   to show that some volcanoes explode high into the air and others do not

   (D)   to show what a volcano looks like when it erupts and what it looks like before it erupts

4   The photograph of Devils Tower is MOST important to the reader because it shows

   (A)   the shape of the tower's columns

   (B)   the minerals that are within the columns

   (C)   the height of the tower

   (D)   the flat surface of the tower's top

MATHS MATE
Term 1 - Sheet 8

9

Name: ....

Due Date: .... / .... / ....

Parent's Signature: ....

---

1. [Long ×,÷]

$2080 \div 100 =$

2. [Decimal +,−] *

$10.047 + 6.787 =$

3. [Decimal ×,÷]

$0.003 \times 100 =$

4. [Fraction +,−] *

$\dfrac{16}{7} - \dfrac{1}{7} =$

5. [Fraction ×,÷] *

$\dfrac{4}{5} \div \dfrac{1}{4} =$

6. [Percentages] *

The slopes at Thredbo are classified 16% beginner terrain, 67% intermediate and the rest advanced. What percentage are advanced slopes?

7. [Decimals / Fractions / Percentages] *

Complete the equivalent fractions:

$$\dfrac{3}{\square} = \dfrac{15}{20} = \dfrac{\square}{100}$$

8. [Integer +,−]

$(-5) - (+2) =$

9. [Integer ×,÷]

$(-8) \div (-1) =$

10. [Rates / Ratios] *

What is the ratio of hydrogen to carbon to oxygen atoms in the glucose formula $C_6H_{12}O_6$?

11. [Indices]

$0^4 =$

12. [Square Roots] *

$\sqrt{2\dfrac{7}{9}} =$

13. [Exploring Number] *

$8 + (10 - 7)^2 =$

14. [Applied Number] *

A payment option for an orthodontic treatment is 8 quarterly instalments of $675. A discount of 25% applies if the whole sum is paid up-front. How much is the saving for an up-front payment?

$

15. [Number Patterns]

Complete the pattern:

$62 , 60 , 56 , 50 , 42 ,$ _____ , _____

16. [Expressions]

The canteen had p sausages and sold 25 at lunch time. How many sausages were left?
[Express your answer in terms of p.]

17. [Substitution] *

If $t = 5$, find the value of $\dfrac{30}{t}$

18. [Expansion]

Expand $7(4y - 3)$

19. [Factorisation]

Factorise $15a + 6b$

20. [Equations] *

Solve for x: $\dfrac{x}{4} = 3$

21. [Graphs & Functions]

Complete this table of values for the linear rule $y = -x + 4$

x	$y = -x + 4$	(x , y)
0	$y = -0 + 4 = 4$	$(0 , 4)$
1		
4		

QUOTE OF THE WEEK: Some people walk in the rain, others get wet. Roger Miller

22. [Units of Measurement / Time]

The most appropriate unit for measuring the volume of oil in a tanker is:

A) cubic metres
B) cubic millimetres
C) millilitres
D) metres

23. [Perimeter / Area] *

Cricket stumps stand 71 cm above the ground. The bails protrude 1.3 cm above this. The wicket (3 stumps) is 23 cm in width. What is the rectangular area of the wicket?

$$cm^2$$

24. [Surface Area / Volume] *

Each ice cube has a side length of 2 cm. What is the volume of ice in this tray?

$$cm^3$$

25. [Pythagoras]

Which statements of Pythagoras' theorem are correct?

A) $a^2 + c^2 = b^2$
B) $c^2 = a^2 + b^2$
C) $b^2 = c^2 - a^2$
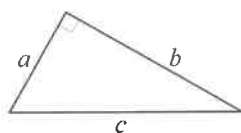
and

26. [Shapes]

Which two options describe this triangle?

A) obtuse-angled
B) acute-angled
C) scalene

and

27. [Angles] *

Find the value of $x°$.
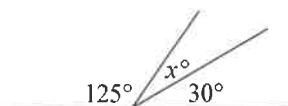
28. [Exploring Geometry]

How many degrees latitude are between Austin, Texas (USA) and Timaru (New Zealand)?
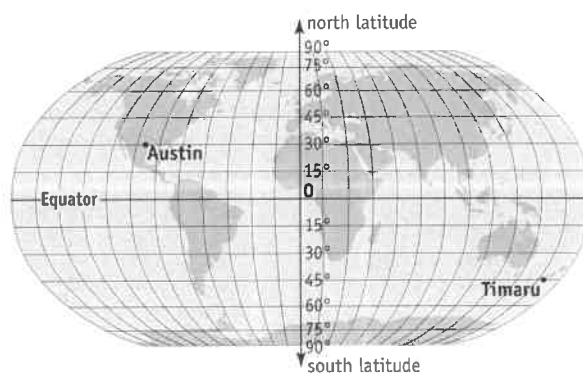
29. [Statistics] *

Find the mode and median of this set of data:

17, 15, 16, 16, 14, 15, 17, 15, 18, 14, 16, 15

mode =   median =

30. [Probability] *

A 52-card deck of playing cards is shuffled, and one card is dealt from the top of the deck. What is the probability that it is a black court card (J, Q or K)?

31. [Problem Solving 1] *

Each of my sons has as many brothers as sisters, but each of my daughters has only half as many sisters as brothers. How many children do I have?

32. [Problem Solving 2]

Place all the digits 1 to 5 in each row and column, so that they are not repeated in any of the rows, columns, diagonals and shaded squares. The numbers outside the big square represent the products of the four digits in each shaded square.
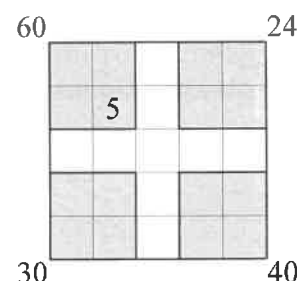
MATHS MATE
Term 2 - Sheet 1

9

Name: ....

Due Date: .... / .... / ....

Parent's Signature: ....

1. [Long ×,÷] *
$$16 \times 17 =$$

2. [Decimal +,–] *
$$6.3 - 0.7 =$$

3. [Decimal ×,÷]
$$17.26 \times 0.1 =$$

4. [Fraction +,–] *
$$\frac{1}{6} + \frac{2}{6} =$$

5. [Fraction ×,÷]
$$\frac{1}{3} \times \frac{1}{4} =$$

6. [Percentages] *
$$60\% \text{ of } 800 =$$

7. [Decimals / Fractions / Percentages] *
Write 0.5 as a fraction in simplest form.

8. [Integer +,–]
$$(-5) + (+7) =$$

9. [Integer ×,÷]
$$(+6) \times (+6) =$$

10. [Rates / Ratios] *
A certain jet ski on the market will reach about 105 kilometres per hour in ideal conditions. At this speed, what distance can it cover in 2 hours?

km

11. [Indices]
$$\left(\frac{1}{2}\right)^3 =$$

12. [Square Roots]
$$\sqrt{0.09} =$$

13. [Exploring Number]
Round 0.85 to 1 decimal place.

14. [Applied Number] *
Stan pays a 10% deposit to place a pool table on layby. If the pool table costs $1590, how much was Stan's deposit?

$

15. [Number Patterns]
Complete the pattern:
$$-15, -12, -9, -6, -3, \underline{\qquad},$$

16. [Expressions]
Simplify $x \times 2$

17. [Substitution] *
If $a = 3$ and $b = 6$,
find the value of $4a - 2b$

18. [Expansion]
Expand $c(c + 4)$

19. [Factorisation]
Factorise $mn + m$

20. [Equations] *
Solve for x: $3x - 2 = 7$

21. [Graphs & Functions]
Plot the graph of the linear rule $y = 2$ on the Cartesian plane below by first completing this table of values. [Label the graph with the rule.]

x	–2	–1	0	1	2
y	2				
(x,y)	(–2,2)				
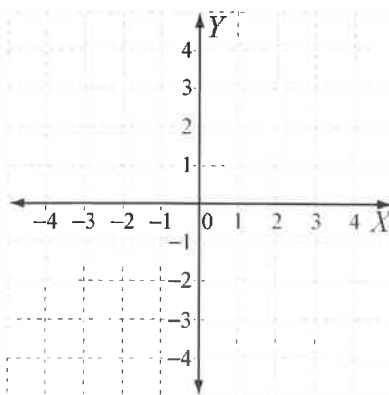
QUOTE OF THE WEEK: My way of joking is to tell the truth. It's the funniest joke in the world. George Bernard Shaw

①②③④⑤⑥⑦⑧⑨⑩⑪⑫⑬⑭⑮ ⑯⑰⑱⑲⑳㉑

22. [Units of Measurement / Time]

Choose the most reasonable temperature for paper to self ignite.

A) 100°C

B) 23°C

C) 233°C

23. [Perimeter / Area] *

Find the perimeter of a rhombus with a side length of 11 centimetres.

cm

24. [Surface Area / Volume] *

Find the total surface area of the ice block.

10 mm

9 mm   14 mm
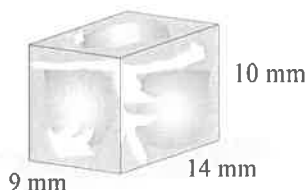
mm^2

25. [Pythagoras] *

Find the positive solution for b:
$30^2 + b^2 = 50^2$

26. [Shapes]

I am a two-dimensional shape with 4 sides. My diagonals are equal in length and bisect each other at right angles. What am I?

A) parallelogram

B) rectangle

C) square

D) rhombus

27. [Angles]
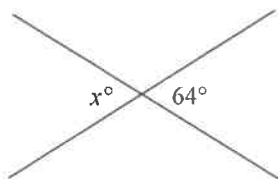
Find the value of $x°$.

$x°$ $64°$

28. [Exploring Geometry]

Which transformation (translation, reflection or rotation) has moved the original shape to its new position?

8 right

2 down

original

image
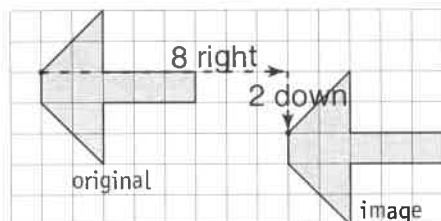
29. [Statistics]

In which style of game at Wimbledon has Navratilova had the most wins compared to losses?

Matches at Wimbledon: ☐ Losses
Martina Navratilova   ■ Wins

matches

150
120
90
60
30
0

Singles   Doubles   Mixed doubles
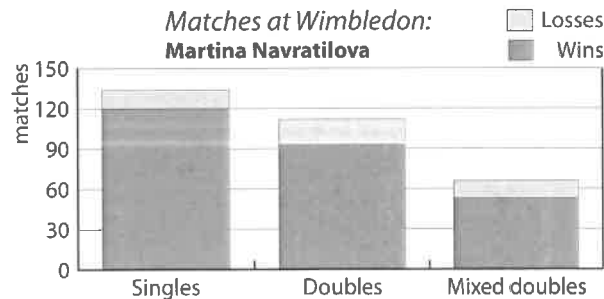
30. [Probability] *

This spinner is spun once. What is the probability of spinning a multiple of 4?

27 30
24   3
21   6
18   9
15 12
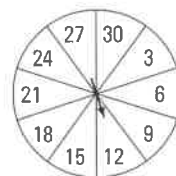
31. [Problem Solving 1] *

"Could you change $2 for me for the parking meter?" inquired the young woman.

"Sure," I replied, knowing I had more than $2 in change in my pocket. In actual fact however, although I did have more than $2 in change, I could not give the woman exactly $2. What is the largest amount of change I could have in my pocket without being able to give change for $2 exactly?

$

32. [Problem Solving 2] *

The lines of a multiplication table are shown jumbled below. Which times table is it?

B × H = GD
B × G = FC
B × F = B
B × J = IJ
B × E = JI
B × I = HE
B × B = CF
B × C = DG
B × D = EH

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MATHS MATE
Term 2 - Sheet 2

9

Name: ....

Due Date: ..../ ..../ ....

Parent's Signature: ....

1. [Long ×,÷] *
$24 \times 13 =$

2. [Decimal +,−] *
$3.04 - 2.38 =$

3. [Decimal ×,÷]
$0.1 \times 0.65 =$

4. [Fraction +,−] *
$\dfrac{7}{8} - \dfrac{1}{8} =$

5. [Fraction ×,÷]
$\dfrac{2}{5} \times \dfrac{2}{3} =$

6. [Percentages] *
$20\% \text{ of } 700 =$

7. [Decimals / Fractions / Percentages] *
Write 0.06 as a fraction in simplest form.

8. [Integer +,−]
$(-3) + (-2) =$

9. [Integer ×,÷]
$(-4) \times (+12) =$

10. [Rates / Ratios] *
The Peregrine Falcon is the fastest animal on earth. It can dive 2700 m in 30 seconds. What is its average speed?

m/s

11. [Indices]
$\left(\dfrac{2}{3}\right)^2 =$

12. [Square Roots]
$\sqrt{0.81} =$

13. [Exploring Number]
Round 8.473 to 2 decimal places.

14. [Applied Number] *
Finn leaves an extra 25% of the restaurant bill as a tip. If the bill was $72, how much was the tip?

$

15. [Number Patterns]
Complete the pattern:
$-13, -9, -5, -1, 3,$ _____ , _____

16. [Expressions]
Simplify $b \times a$

17. [Substitution] *
If $a = 12$ and $b = 2$,
find the value of $\dfrac{3ab}{8}$

18. [Expansion]
Expand $e(e - 5)$

19. [Factorisation]
Factorise $3p + 15pq$

20. [Equations] *
Solve for x: $\dfrac{x}{3} - 2 = 4$

21. [Graphs & Functions]
Plot the graph of the linear rule $x = -3$ on the Cartesian plane below by first completing this table of values. [Label the graph with the rule.]

x	−3				
y	−2	−1	0	1	2
(x,y)	(−3,−2)				

QUOTE OF THE WEEK: Hurry! I never hurry. I have no time to hurry. Igor Stravinsky: Attrib.

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑯ ⑰ ⑱ ⑲ ⑳ ㉑
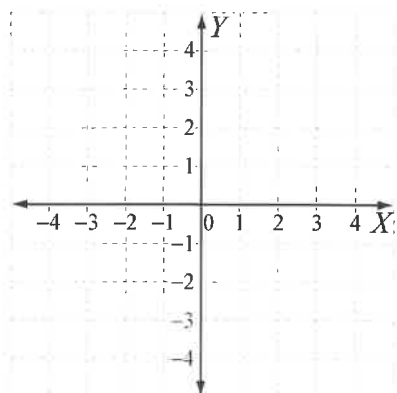
22. [Units of Measurement / Time]

Choose the most reasonable volume for the air in a four-man, hot air balloon.

A) 2500 m^3
B) 2.5 m^3
C) $25\,000 \text{ m}^3$

23. [Perimeter / Area] *

Central Park in New York City is rectangular in shape, 4 km in length and 0.8 km wide. How far would a run around Central Park be?

km

24. [Surface Area / Volume] *

Billie wants to make a CD box, open at the top. The box needs a base of 13 cm by 200 cm and is to be 15 cm high. How much wood should Billie buy?

cm^2

25. [Pythagoras] *

Find the positive solution for a:
$a^2 + 12^2 = 13^2$

26. [Shapes]

I am a two-dimensional shape with 4 sides. All sides are equal in length, but adjacent angles are not equal. What am I?

A) square
B) trapezium
C) rectangle
D) rhombus

27. [Angles]
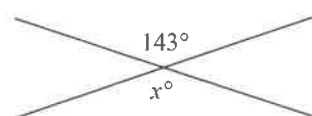
Find the value of $x°$.

143°

$x°$

28. [Exploring Geometry]

Which transformation (translation, reflection or rotation) has moved the original shape to its new position?

original   image
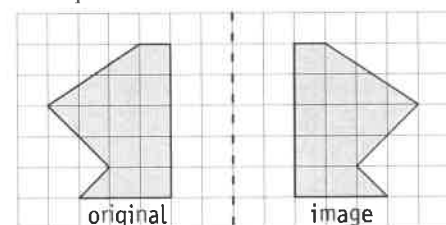
29. [Statistics]

In which state or territory is the percentage of children aged 3 to 6 attending preschool for 10 - 14 hours per week, closest to 50%?

Children aged 3 - 6 who usually attended preschool (2009)

15 hours + per week
10 - 14 hours per week
< 10 hours per week
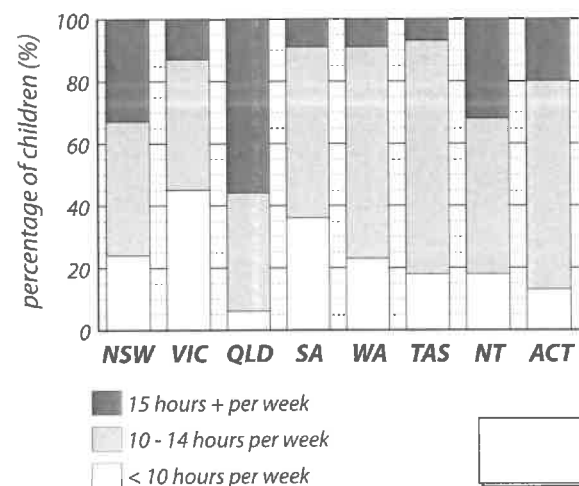
30. [Probability] *

This spinner is spun once. What is the probability of spinning a number greater than 11?
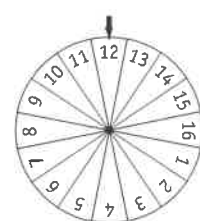
31. [Problem Solving 1] *

The average of six numbers is 8.5. A further two numbers are added and the average is still 8.5. What is the sum of these two numbers?

32. [Problem Solving 2] *

Using three overlapping squares, each with side length of 12 cm, what is the area of the resulting shape?

cm^2

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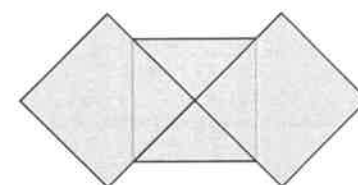
(22)(23)(24)(25) (26)(27)(28) (29) (30) (31)(32)

Analyse and interpret graphs

Name: _____   Date: _____

Linear and Non-Linear Relationships	Investigate, interpret and analyse graphs from real life data, including consideration of domain and range (VCMNA257)

Understanding

1. The graph below shows how fast a car is travelling as it drives through each road in town. Use the graph to answer the following questions.
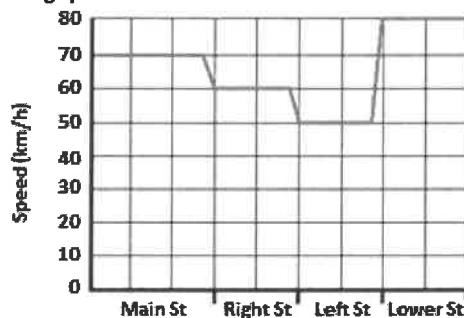
   a) Which street has the slowest speed limit?_____

   b) What was the speed limit on Right St?_____

   c) Which street has a speed limit of 70 km/h?_____

   d) Which street has the fastest speed limit? _____

   e) Order the street speeds from slowest to fastest. _____
   _____

Fluency

1. The journey of a city bus route has been graphed. Use the graph to answer the following questions.
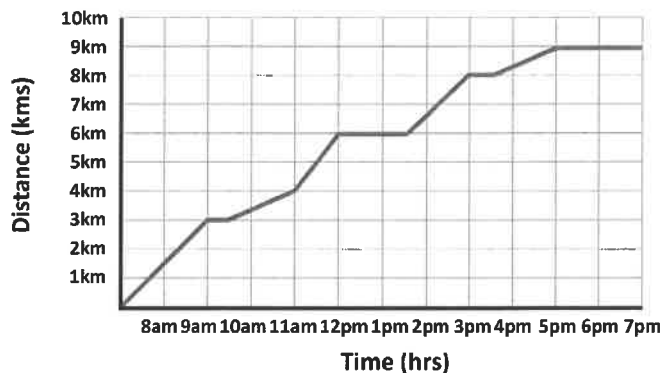
   a) How far did the bus travel during day? _____

   b) What time period was the bus travelling the fastest?
   _____

   c) At what time did the bus driver had lunch?
   _____

   d) What time did the bus driver finished the route?
   _____

Problem Solving

1. Thompsons Trucks have plotted their Western Sydney truck route. Use the graph to calculate the different speeds that it travelled at.

   a) How fast did the truck travel from 11am-1pm? _____

   b) How fast did the truck travel from 1pm-2pm? _____

   c) How fast did the truck travel from 2pm-3pm? _____

   d) How fast did the truck travel from 3pm-5pm? _____

   e) How fast did the truck travel from 5pm-7pm? _____

   f) How fast did the truck travel after 7pm?_____

Reasoning

1. Write a brief story to match the above distance-time graph of the Thompsons Truck. _____
_____
_____

Plot and find coordinates

Name: _____   **Date:** _____

Linear and Non-Linear Relationships	Given coordinates, plot points on the Cartesian plane, and find coordinates for a given point (VCMNA255)

Understanding

1. Use the grid to list the coordinates of the following shapes.
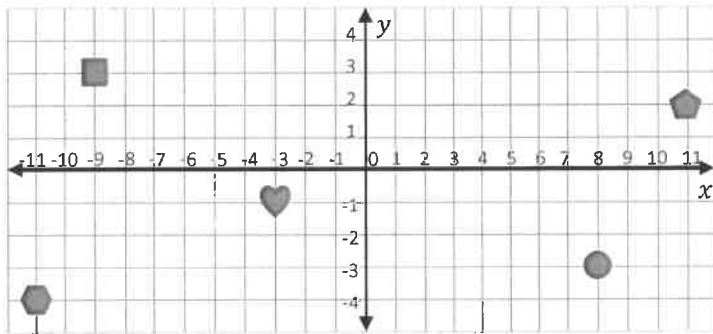
- **Circle -** _____
- **Square -** _____
- **Pentagon -** _____
- **Hexagon -** _____
- **Heart -** _____

Fluency

1. Start from the coordinates given and follow the directions to work out the coordinates of your new location.
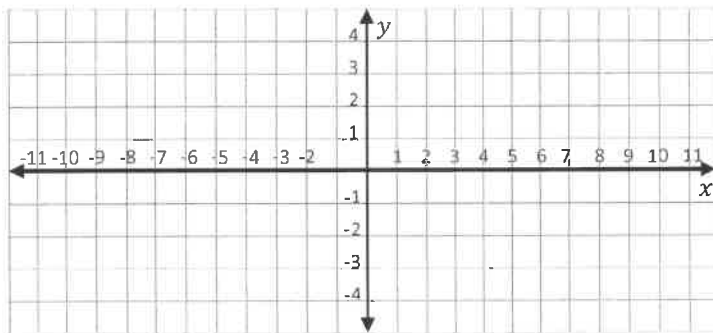
a) Start at $(-8, 3)$ and move 6 **down** and 3 **left**.

What is your new location? _____

b) Start at $(-9, 1)$ and move 3 **up** and 17 **right**.

What is your new location? _____

c) Start at $(-3, -4)$ and move 5 **up** and 12 **right**.

What is your new location? _____

d) Start at $(11, -4)$ and move 8 **up** and 20 **left**.

What is your new location? _____

Problem Solving

1. Plot the coordinates given in both tables on the axis. Connect each set of points to form two straight lines.

x	-12	-6	4	10
y	-5	-2	3	6

x	-12	-4	2	7
y	-4	0	3	5.5
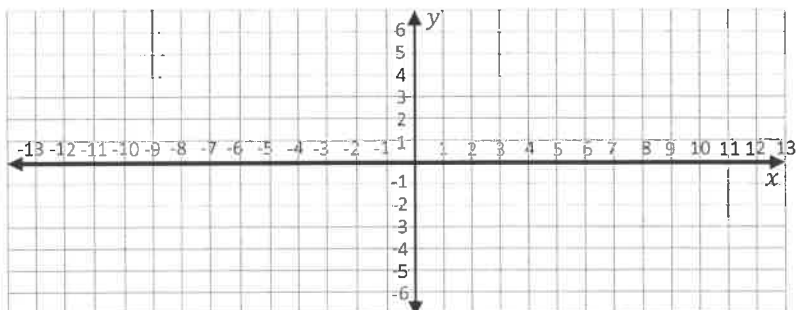
Reasoning

1. Circle the graphs that are linear.
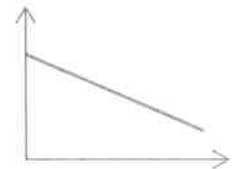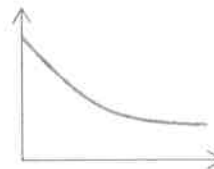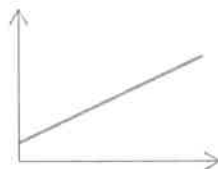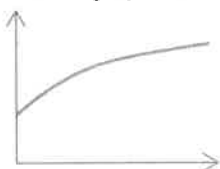
Grid Reference - The Hidden Friend

Colour the following squares and you will find a smiling friend

Co-ordinates:

D3	I2	C7
N5	B6	F2
D8	C4	L6
G2	E9	E3
J8	K11	L4
F12	M4	Q7
F4	F9	H12
I13	H2	J3
O8	P9	B5
M6	H9	D12
E13	P6	Q8
J12	K3	S8
G11	O5	K7
I9	R9	E6

Different colour
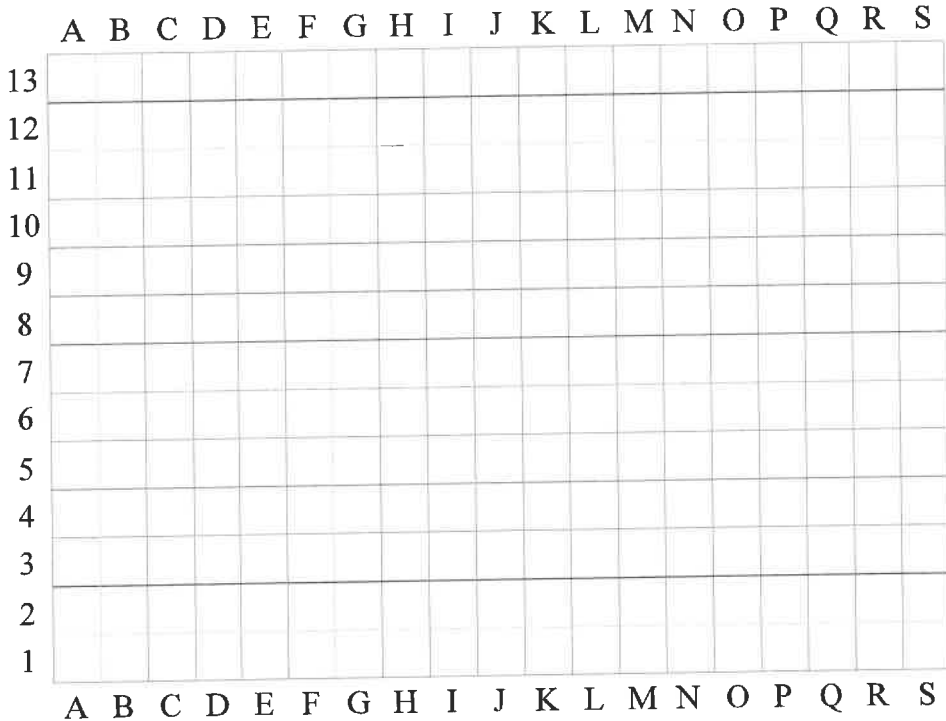
Colour the following squares in blue (or black and red when indicated) and you will find an enthusiastic friend

Co-ordinates:

G11	A4	D1	F7	K12	L3

G11	A4	D1	F7	K12 L3
P6	N8	Q8	A9	I12 S8
C2	O2	E11	S9	H8 L12
M6	M11	N7	R10	O5
P12	R3	Q2	B5	E2
F8	N10	A7	M4	O8
Q1	J13	O11	M5	G4
C7	D8	C8	G5	E5
H12	B10	E3	F10	A8
G6	D12	E4	S4	P1
P8	S6	H3	Q11	S7
C1	B3	O3	C11	Q7
E8	A6	L8	D6	O4
R5				

Change Colour:

K2	J1	J2	I2

Change Colour:

L9	J5	I5	J4	H9	K5
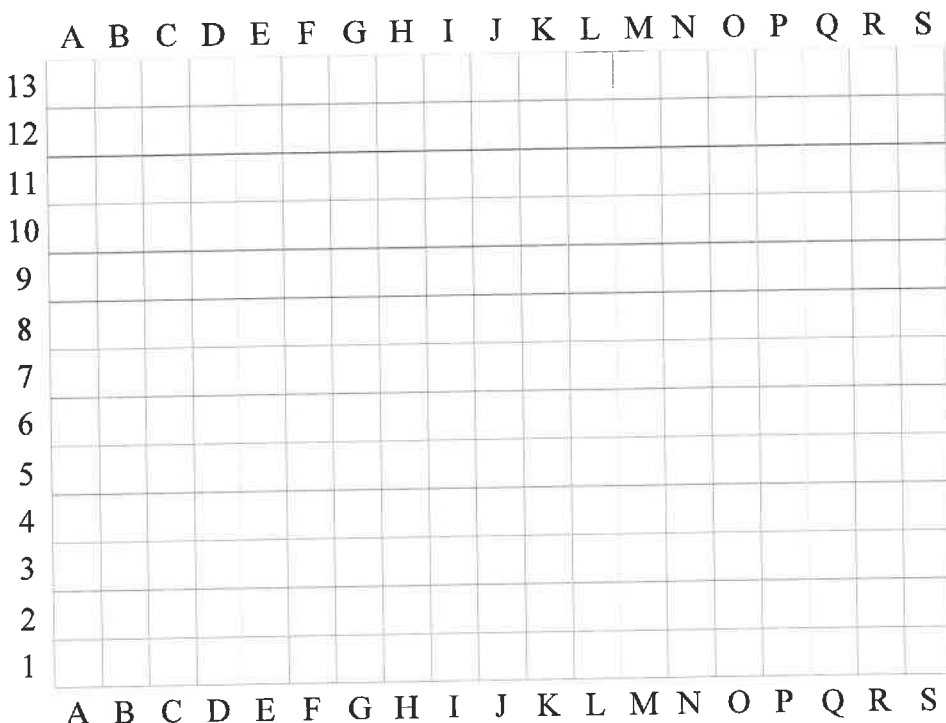
Plotting Points - 4 Quadrants

Give the co-ordinates for the points on the number plane below.

Plot the following points on the number plane below, label each point and give the quadrant that the point lies in.
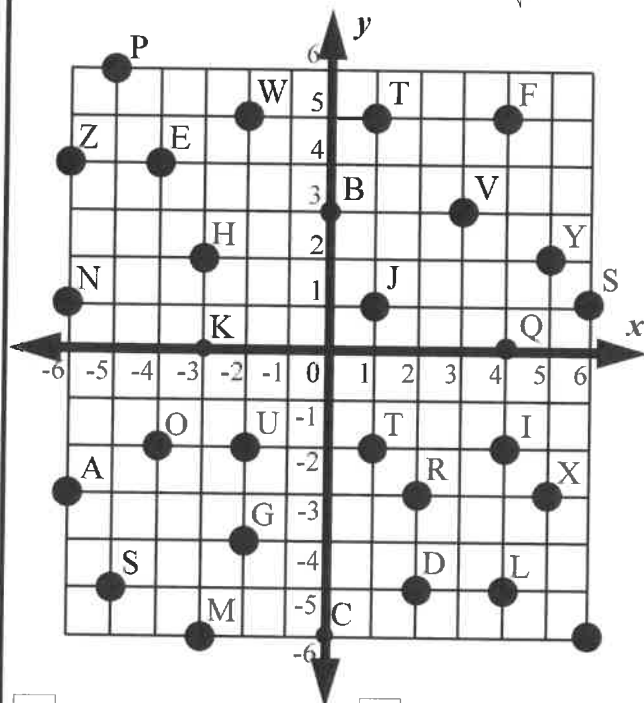
1	Point A _____	14	Point N _____
2	Point B _____	15	Point O _____
3	Point C _____	16	Point P _____
4	Point D _____	17	Point Q _____
5	Point E _____	18	Point R _____
6	Point F _____	19	Point S _____
7	Point G _____	20	Point T _____
8	Point H _____	21	Point U _____
9	Point I _____	22	Point V _____
10	Point J _____	23	Point W _____
11	Point K _____	24	Point X _____
12	Point L _____	25	Point Y _____
13	Point M _____	26	Point Z _____

27	Point A	(-5, -2)	Quadrant I II III IV Axis
28	Point B	(2, 4)	Quadrant I II III IV Axis
29	Point C	(4, 0)	Quadrant I II III IV Axis
30	Point D	(3, -3)	Quadrant I II III IV Axis
31	Point E	(-3, 6)	Quadrant I II III IV Axis
32	Point F	(0, 0)	Quadrant I II III IV Axis
33	Point G	(6, -5)	Quadrant I II III IV Axis
34	Point H	(-2, 4)	Quadrant I II III IV Axis
35	Point I	(6, 2)	Quadrant I II III IV Axis

36	Point J	(1, -4)	Quadrant I II III IV Axis
37	Point K	(-3, -4)	Quadrant I II III IV Axis
38	Point L	(5, -3)	Quadrant I II III IV Axis
39	Point M	(-4, 2)	Quadrant I II III IV Axis
40	Point N	(3, -5)	Quadrant I II III IV Axis
41	Point O	(0, -3)	Quadrant I II III IV Axis
42	Point P	(-6, -5)	Quadrant I II III IV Axis
43	Point R	(-2, 1)	Quadrant I II III IV Axis
44	Point S	(2, -2)	Quadrant I II III IV Axis

Logic-Grid Puzzle

As the name suggests, these puzzles use grids to help keep you organized. This is very helpful as logic-grid puzzles can get very complicated.

Example VIII

Five sisters all have their birthday in a different month and each on a different day of the week. Using the clues below and the grid, determine the month and day of the week each sister's birthday falls.

1. Paula was born in March but not on Saturday. Abigail's birthday was not on Friday or Wednesday.

2. The girl whose birthday is on Monday was born earlier in the year than Brenda and Mary.

3. Tara wasn't born in February and her birthday was on the weekend.

4. Mary was not born in December nor was her birthday on a weekday. The girl whose birthday was in June was born on Sunday.

5. Tara was born before Brenda, whose birthday wasn't on Friday. Mary wasn't born in July.

(Source: puzzlersparadise.com)

	February	March	June	July	December	Sunday	Monday	Wednesday	Friday	Saturday
Abigail										
Brenda										
Mary										
Paula										
Tara										
Sunday					
Monday					
Wednesday					
Friday					
Saturday					

2. **FILL-IN PUZZLE.** Fill the grid in with the numbers in the list. You can only use each number once.

3 DIGITS	7701	9875	46778	670968
051	7843	9949	62264	886112
127	8034		62869	
187	8168	**5 DIGITS**	66398	**8 DIGITS**
461	8328	00458	67121	03722431
472	8380	02293	69688	40157695
518	8537	11199	69753	69789046
521	8709	14372	69786	90156203
553	8778	17012	72808	
694	8834	18317	73108	
874	8890	19688	78948	
888	9061	23372		
899	9267	23587	**6 DIGITS**	
926	9320	26130	250386	
938	9600	29885	591188	
994				
998				

4 DIGITS
0385
0596
1542
1815
2039
2220
3196
3331
3619
4486
5808
5896
6043
6269
6297
6311
6379
6526
6824
7362
7516

(grid with cells, showing 2 6 1 3 0 filled in)
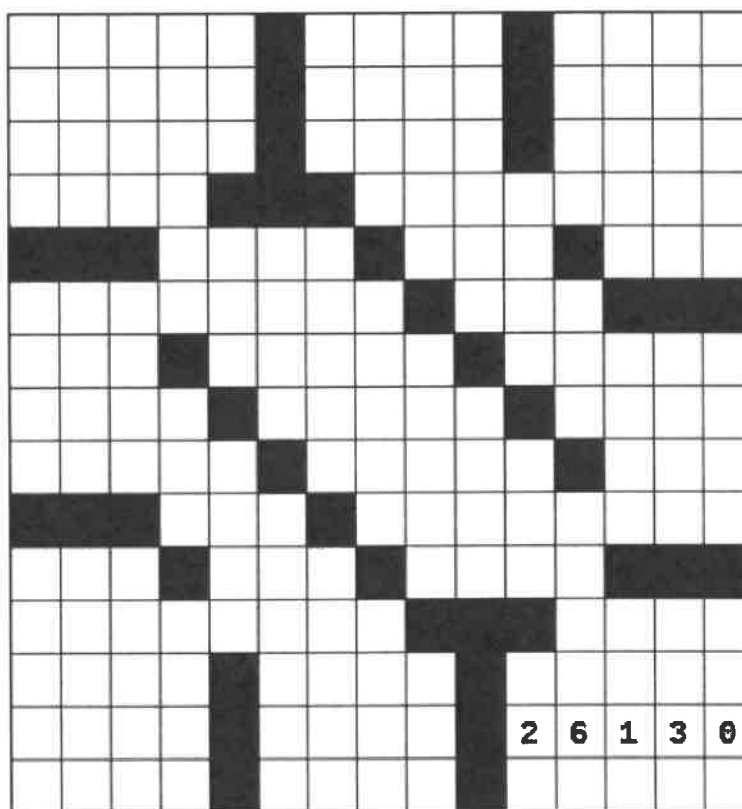
Copyright 2008 Fill-In-Puzzles.com.

8

Adding Coins

Many transactions in real life involve the handling of money. In Australia, we have six different coins—5-cent, 10-cent, 20-cent, 50-cent, 1-dollar and 2-dollar coins. 100 cents is equal to 1 dollar.
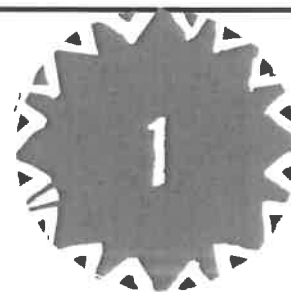
Determine the total value of each combination of coins below without using a calculator. Write the value on the line.

1. 1 20-cent coin, 3 5-cent coins, 2 10-cent coins _____

2. 1 1-dollar coin, 2 10-cent coins, 2 20-cent coins _____

3. 5 20-cent coins, 5 10-cent coins, 3 5-cent coins _____

4. 1 2-dollar coin, 1 5-cent coin, 1 50-cent coin _____

5. 4 5-cent coins, 12 10-cent coins, 1 1-dollar coin _____

6. 2 50-cent coins, 2 2-dollar coins, 3 20-cent coins _____

Comparing Coins

Coins can be combined in many different ways. A large stack of coins may or may not have more value than a small stack of coins. For example, 15 5-cent coins (75 cents) has less value than a much smaller stack of 4 20-cent coins (80 cents). Sometimes a larger stack of coins does have a greater value than a small stack. For example, 19 5-cent coins (95 cents) is worth more than 7 10-cent coins (70 cents).

Determine which combination of coins below represents the greatest amount of money without using a calculator.

a. 12 5-cent coins, 1 1-dollar coin, 1 20-cent coin

b. 1 50-cent coin, 4 10-cent coins, 1 2-dollar coin

c. 1 1-dollar coin, 3 10-cent coins, 9 5-cent coins

d. 2 50-cent coins, 10 5-cent coins, 1 2-dollar coin

e. 3 50-cent coins

f. 5 10-cent coins, 4 20-cents coins, 3 5-cent coins
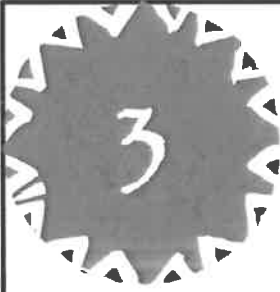
Adding Notes

Amounts of money over two dollars come in plastic notes. In Australia we have the 5-dollar note, the 10-dollar note, the 20-dollar note, the 50-dollar note and the 100-dollar note. A small stack of notes does not necessarily mean a small amount of money, and a large stack of notes does not necessarily mean a large amount of money.

Determine the total value of each combination of notes below without using a calculator.

1. 1 5-dollar note, 2 10-dollar notes, 4 20-dollar notes _____

2. 2 100-dollar notes, 3 50-dollar notes, 6 5-dollar notes _____

3. 50 5-dollar notes, 3 10-dollar notes _____

4. 8 5-dollar notes, 1 20-dollar note, 6 10-dollar notes _____

5. 12 50-dollar notes, 4 10-dollar notes, 7 20-dollar notes _____

6. 3 5-dollar notes, 1 10-dollar note, 1 20-dollar note, 1 50-dollar note, 1 100-dollar note _____

Comparing Notes

Notes can be combined in many different ways. A large stack of notes may or may not have more value than a small stack of notes. For example, 50 5-dollar notes ($250) has less value than a much smaller stack of 11 50-dollar notes ($550). Sometimes a larger stack of notes does have a greater value than a small stack. For example, 75 10-dollar-notes ($750) is worth more than 7 100-dollar notes ($700).

Determine which combination of notes below represents the greatest amount of money without using a calculator.

a. 10 50-dollar notes, 10 10-dollar notes, 20 5-dollar notes

b. 40 10-dollar notes, 1 20-dollar note, 20 5-dollar notes

c. 2 100-dollar notes, 1 50-dollar note, 4 10-dollar notes, 2 5-dollar notes

d. 24 10-dollar notes, 11 20-dollar notess

e. 4 50-dollar notes, 3 20-dollar notes, 18 10-dollar notes

f. 50 5-dollar notes, 2 50-dollar notes, 3 10-dollar notes, 4 20-dollar notes

Adding Coins and Notes

5

When you make a purchase, the total amount of money you spend is usually a combination of dollars and cents. An amount such as $10.45 or $8.95 is more common than a round number such as $11.00.

Determine the total value of each combination of notes and coins below without using a calculator.

1. 2 100-dollar notes, 3 20-cent coins, 7 10-cents coins _____

2. 1 20-dollar note, 8 2-dollar coins, 3 5-cent coins _____

3. 2 50-dollar notes, 3 50-cent coins, 52 10-cent coins _____

4. 3 5 dollar notes, 16 2-dollar coins, 8 5-cent coins _____

5. 4 5-dollar notes, 6 20-cent coins, 4 10-cent coins _____

6. 6 20-dollar notes, 3 5-dollar notes, 11 5-cent coins _____

Comparing Coins and Bills

6

The value of an amount of money is not always related to the size of the stack. For instance, 5 100-dollar notes are worth as much as a stack of 10,000 5-cent coins. The 5 100-dollar notes would weigh about 4 grams, and the 10,000 5-cent coins would weigh about 30 kilograms! The values are the same even though the coins weigh 10,000 times more than the notes and take up a lot more room.

Determine which combination of notes and coins below represents the greatest amount of money without using a calculator.

a. 10 20-dollar notes, 3 5-dollar notes, 10 1-dollar coins, 2 20-cent coins

b. 1 50-dollar note, 4 20-dollar notes, 3 2-dollar coins, 4 20-cent coins

c. 3 50-dollar notes, 12 10-dollar notes, 12 20-cent coins, 11 5-cent coins

d. 2 100-dollar notes, 3 20-dollar notes, 9 1-dollar coins, 9 20-cent coins

e. 4 50-dollar notes, 16 1-dollar notes, 8 50-cent coins, 11 10-cent coins

f. 4 50-dollar notes, 4 5-dollar notes, 8 50-cent coins, 7 5-cent coins

Making Change with Coins

7

Often when you buy something with coins, you will not have the exact change. Therefore, you will give more than you owe and get change back. It is a good idea to figure out how much money you are owed to make sure you are getting the correct change.

Determine the amount of change you should get back for each of the following purchases without using a calculator.

1. You buy 3 pencils at 15¢ each and pay with 3 20-cent coins. _____

2. You pay for a $1.80 slurpee with a 2-dollar coin. _____

3. You buy a pack of chewing gum for 55¢ and pay with 12 5-cent coins.

   _____

4. You buy a bottle of water for $1.25 and pay with 1 50-cent coin and 4 20-cent coins. _____

5. You buy a bottle of apple juice for $1.95 and pay with 3 50-cent coins and 3 20-cent coins. _____

Making Change with Coins and Notes

8

Often when you buy something with cash, you will not have the exact change. Therefore, you will give more than you owe and get change back. It is a good idea to work out how much money you are owed to make sure you are getting the correct change.

For each problem below, determine whether or not you received the correct change without using a calculator.

1. You buy popcorn at the movies for $6.55. You pay with $10 and get $2.45 in change.

   _____

2. You pay $100 for a pair of sneakers that costs $79.85 and get $11.15 in change. _____

3. You spend $16.50 on magazines and pay with 2 10-dollar notes. You get $3.50 in change.

   _____

4. You buy a meal at a fast-food restaurant for $7.60. You pay with 1 20-dollar note and get $13.40 in change. _____

5. You buy some DVDs for $64.90. You give 4 20-dollar notes and get $15.10 in change.

   _____

Multiplying Money

9

Sometimes when an item is being sold at a reduced price, it is a good deal to buy many of that item. To find the total cost of your purchase, you can multiply the cost of one item by the number of items you're buying.

For each problem below, determine the total cost.

1. You buy 6 soft drinks for $1.35 each. _____

2. You buy 14 sandwiches for $2.70 each. _____

3. You buy a pair of sneakers for $42.35 a pair, so you buy 3 pairs.

   _____

4. You buy 30 rolls of toilet paper for $0.55 a roll. _____

5. You're making biscuits and buy 12 bags of chocolate chips at $1.90 a bag. _____

Dividing Money

10

Sometimes when you buy items in bulk, you save money. But are you always getting the best deal? The best way to know is to calculate the cost per item. For example, if you buy a six-pack of soft drink for $1.80, then each can costs 30¢. If you purchase the cans individually, the cost would be over a dollar per can. Buying the six-pack is the better deal.

For each item below, determine which choice is the better buy. Circle the correct choice.

1. a six-pack of paper towels for $6.50 or six rolls for $1.25 each

2. a 24-can case of soup for $18 or a 4-can pack of soup for $3

3. a 12-pack of pencils for $0.99 or a 50-pack for $4.50

4. a 500-sheet ream of paper for $5.99 or a 250-sheet ream for $3.50

5. a 50-pack of DVDs for $40 or a 12-pack for $10.99

6. a whole album download (14 songs) for $9.99 or a single track for 75¢ each

Estimating a Bill

11

When you go to a restaurant with a group of people, you often have to determine who owes what when the bill arrives. Sometimes the bill is split up for you. If it is not, however, how do you determine your fair share? One of the simplest ways is to round each item you bought to the nearest whole dollar and then add them together.

Estimate each person's share of the bill below. Each person has a different seat number next to his or her items. After you make your estimates, find the exact amounts owed.

Seat 1: chicken burger $6.95
Seat 2: BLT $4.95
Seat 3: salad special $5.25
Seat 3: bottled water $1.45
Seat 1: soft drink $1.75
Seat 2: iced tea $1.55
Seat 1: chicken nuggets $3.55
Seat 3: coconut slice $4.60
Seat 2: slice apple pie $2.60
Seat 3: ice-cream sundae $3.10

Discounts

12

A discount is a way for a business to offer you a service or a product at a lower cost than normal. Discounts are often found when a shop is having a sale or trying to move items that have not been selling well.

Determine the discount amount and the sale price for each of the items below.

1. 15% off a hat that costs $12.50

   discount = _____

   sale price = _____

2. 20% off a portable stereo that costs $45.95

   discount = _____

   sale price = _____

3. 50% off a gold necklace that costs $375.00

   discount = _____

   sale price = _____

4. 15% off a new television that costs $2900.00

   discount = _____

   sale price = _____

English Work Pack 2021- Term 4

Year 9
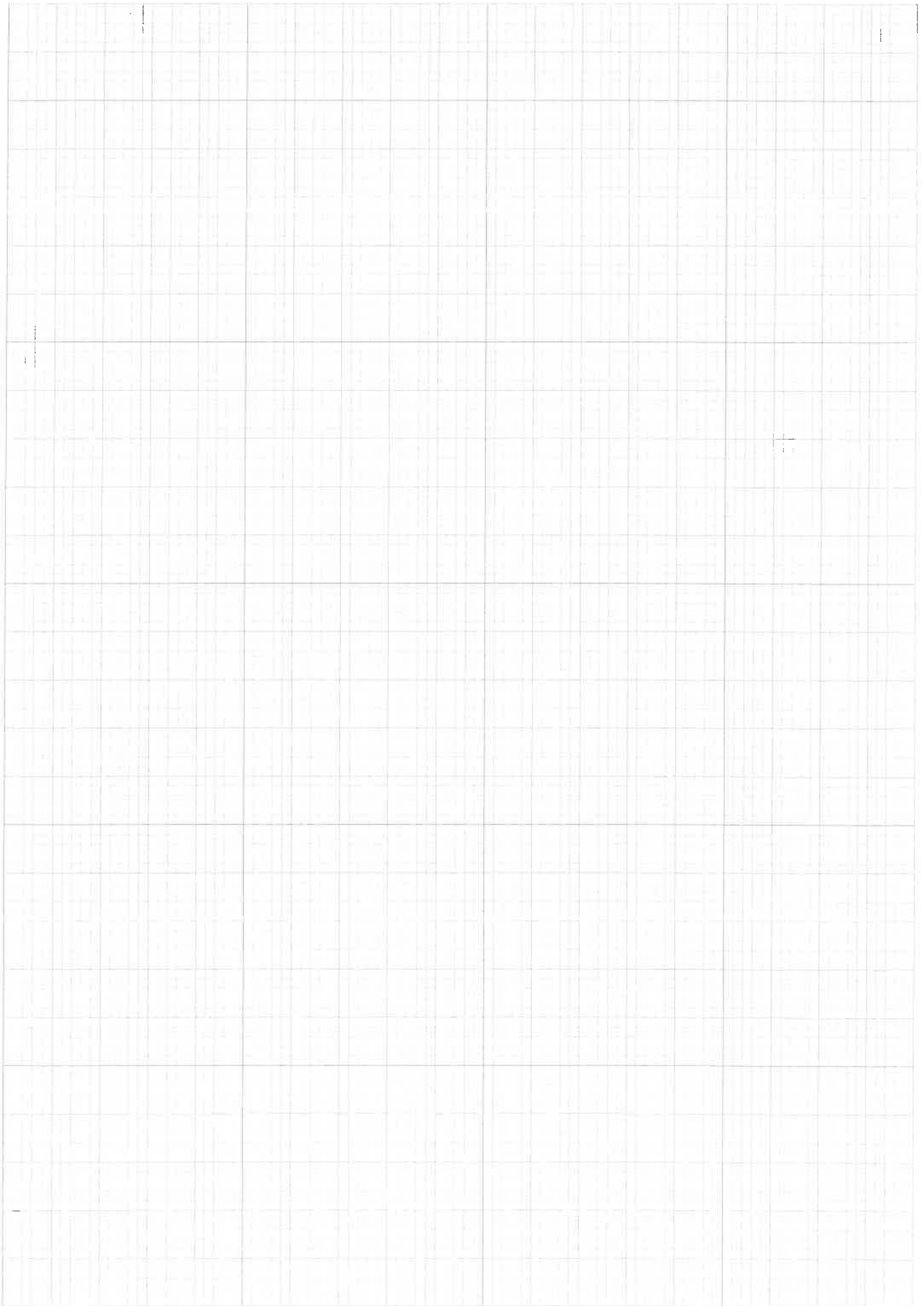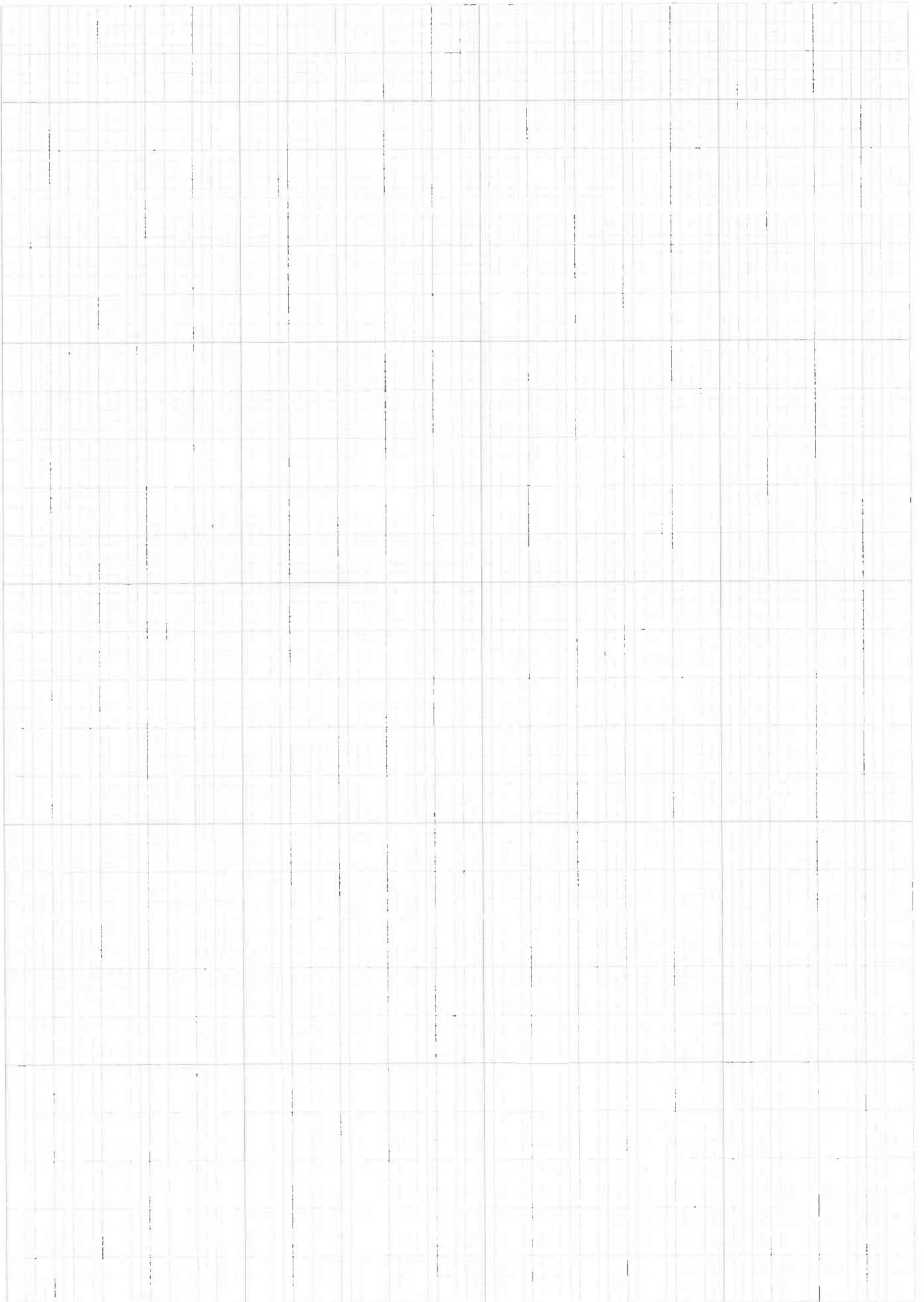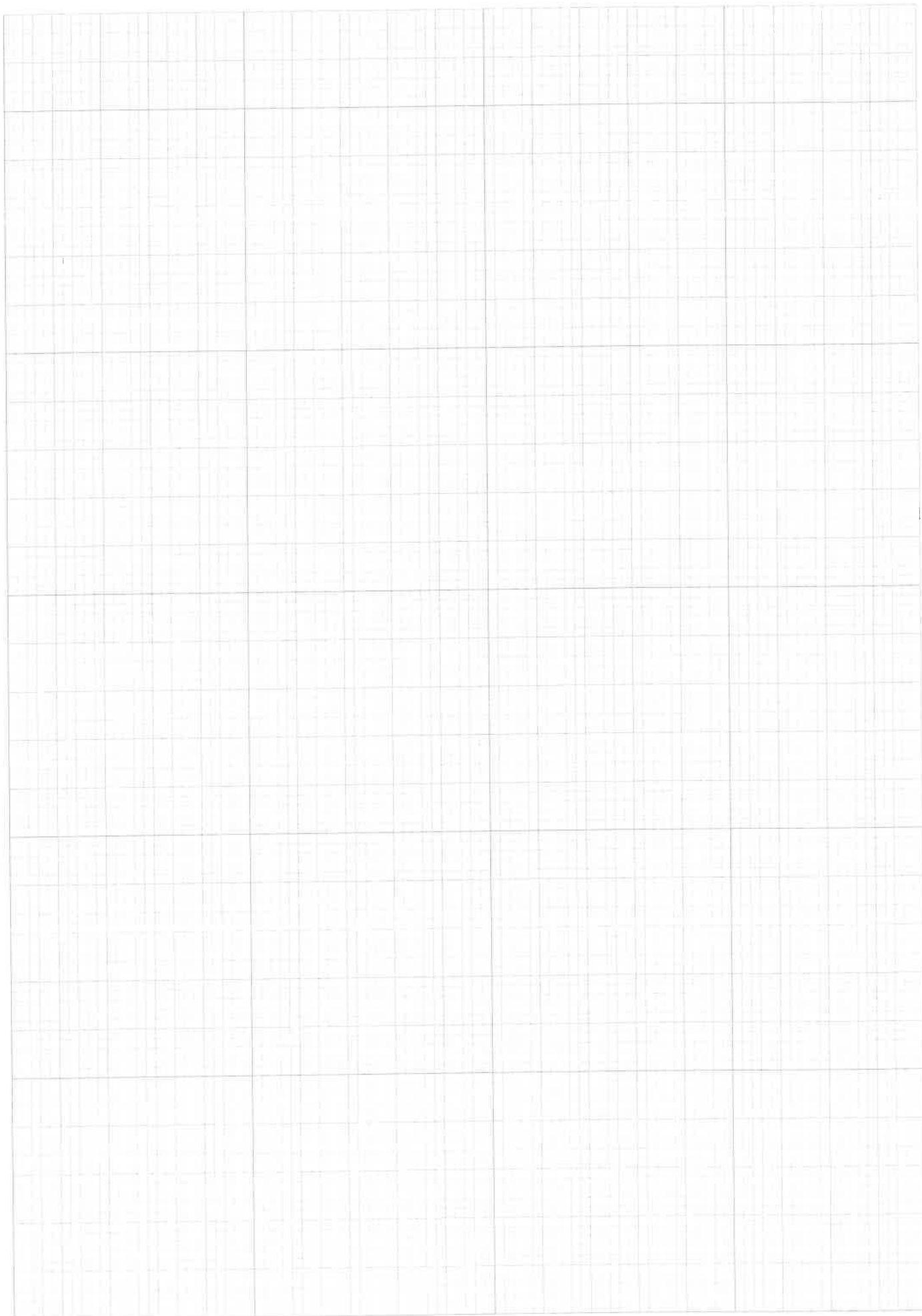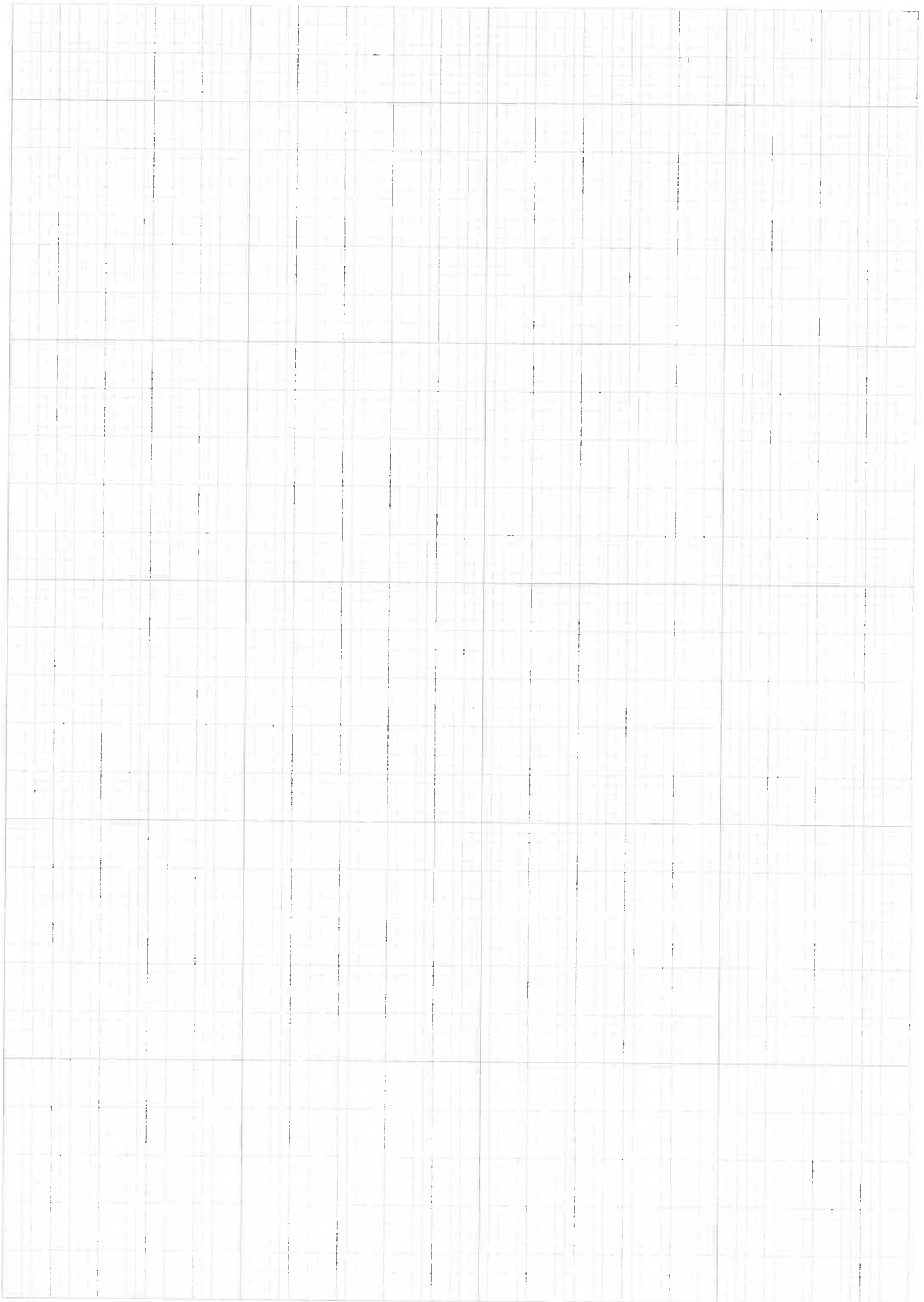
Learning Intention	Success Criteria
To engage with learning after the holidays To start a new unit of work	I can complete writing activities to return to 'school' mode
To begin a new text To prepare for returning to school	I can complete a variety of activities related to the text 'Remember the Titans'

Week 1

Lesson 1	My dream holiday	
Lesson 2	Remember the Titans activities	
Lesson 3	Reading to Learn	
Lesson 4	Film techniques review	
Lesson 5	Plan your own lesson	

Week 2

Lesson 1	Watch Remember the Titans	
Lesson 2	Remember the Titans activities	
Lesson 3	Reading to Learn	
Lesson 4	Remember the Titans storyboard	
Lesson 5	Free lesson	

Notes to Parents/Guardians:

You can support your child to complete their work at home by:

- Encouraging him/her to allocate time for specific subjects
- Reading the material and talking about the ideas with your child (where possible)
- Checking in with your child to ask how he/she is going
- Contacting Teachers if more support or explanation is required

Submission of Work and Feedback:

Students can upload work to Compass where access is available. Photos of handwritten tasks may also be uploaded or emailed to teachers. Students can also mail hard copies of their work back to the school in the supplied envelope.

Students and parents can continue to communicate with Teachers via Compass email. Any questions should be directed to the school email: seymour.co@education.vic.gov.au

Check Compass every day as your teacher may have organised a Webex check-in or lesson that they want you to attend.

Attendance

You will need to complete your attendance in the same way as last time. This involves:

1. Logging in to Compass
2. Clicking on the 'Remote' lesson for your class (e.g. 7C Remote)
3. Selecting the 'Learning Tasks' tab
4. Finding the task for the current day (Daily Attendance Student Response Monday 20th)
5. Typing 'yes' into the 'Conversation' box

This must be done by 11am EVERY DAY. Parents will get a reminder text at 11.00 am if you have not checked in. If your check-in -teacher has not heard from you for two days, they will call home to check-in.

Week 9

Lesson 1- Dream vacation

First	15 minutes of independent reading
Then	Read through the task outline and colour your three spins
Next	Write your story
Last	Send an email to your teacher telling them about your holidays

My dream vacation story wheel.

- Use a pen or pencil to spin the wheel three times
- Colour in your who, where and what spins
- Write for at least 20 minutes
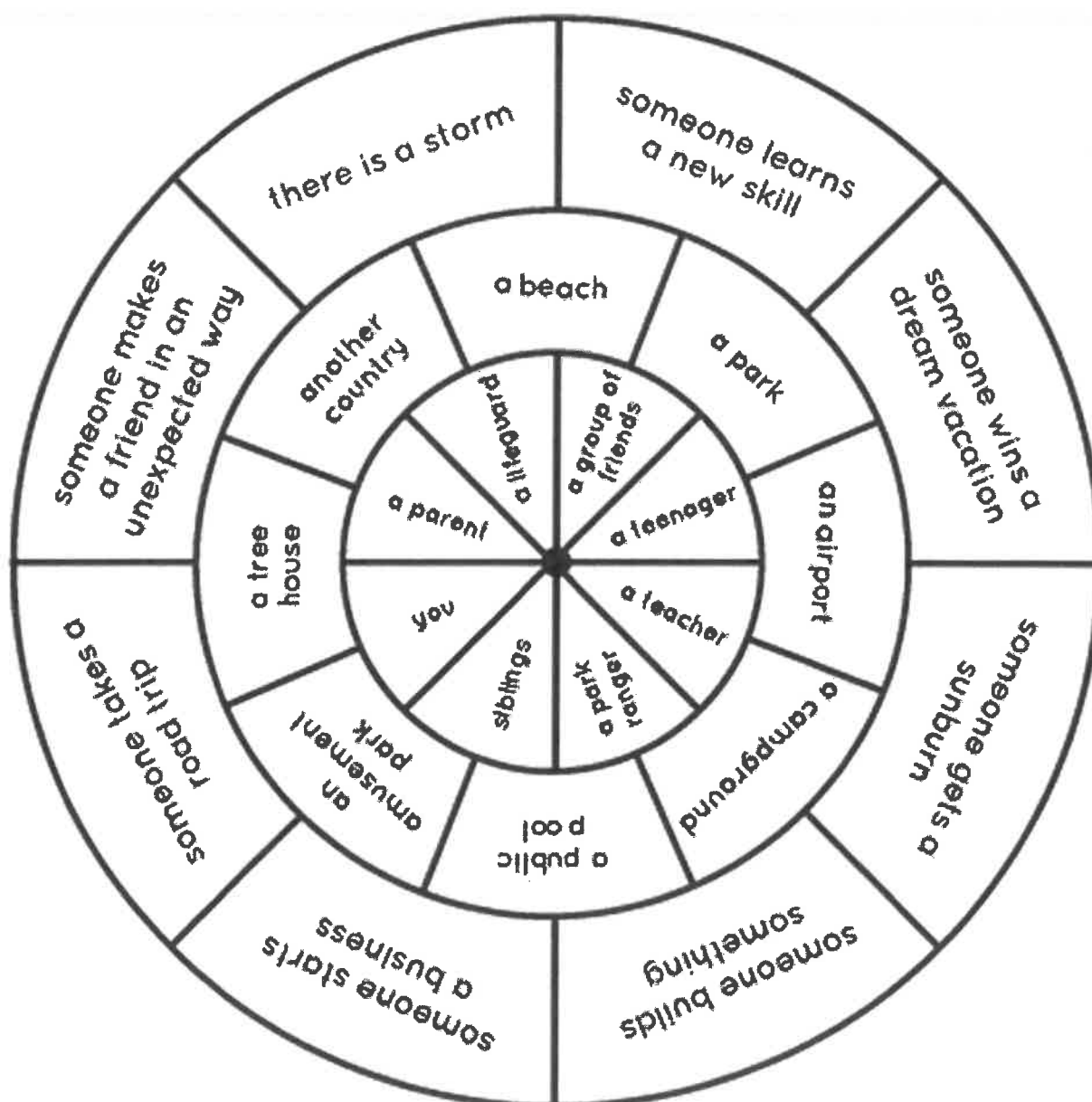
A circular story wheel divided into three concentric rings.

Outer ring (what happens): there is a storm; someone learns a new skill; someone wins a dream vacation; someone gets a sunburn; someone builds something; someone starts a business; someone takes a road trip; someone makes a friend in an unexpected way.

Middle ring (where): a beach; a park; an airport; a campground; a public pool; an amusement park; a tree house; another country.

Inner ring (who): a group of friends; a teenager; a teacher; a park ranger; siblings; you; a parent; a lifeguard.

Write your story here

Lesson 2- Remember the Titans activities

First	15 minutes of independent reading
Then	Look at the movie poster and answer the questions
Next	Read through the synopsis
Last	Make a prediction
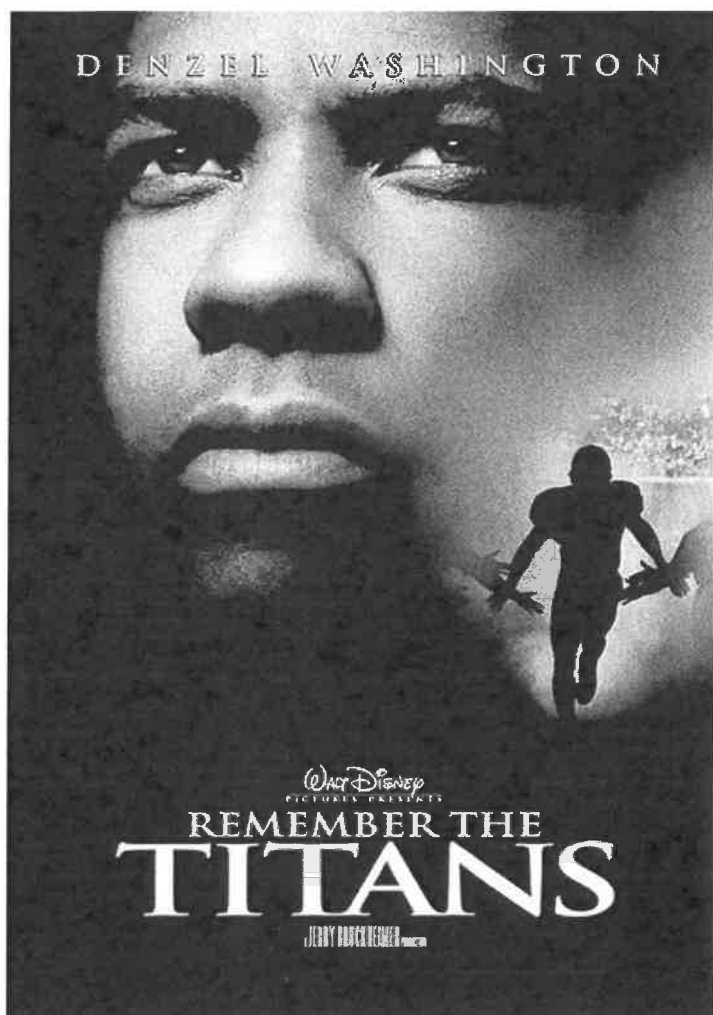
1. What information do you get about the film from looking at the poster?

2. What do you think the film is about?

3. Why do you think Denzel Washington's name is so prominent?

4. Does this make you want to watch the film? Why/why not?

Here is a short synopsis of the film:

In Virginia, high school football is a way of life, an institution revered, each game celebrated more lavishly than Christmas, each playoff distinguished more grandly than any national holiday. And with such recognition, comes powerful emotions. In 1971 high school football was everything to the people of Alexandria. But when the local school board was forced to integrate an all black school with an all white school, the very foundation of football's great tradition was put to the test.

Based on actual events that took place in 1971, a white southern high school is integrated with black students from a nearby school. Both schools are recognized for their football programs which are now unified. The black coach is chosen to be the head coach of the integrated team, leaving the previous white head coach with feelings of animosity at having to be an assistant under a black man.

5

Questions

1. Where is the film set?

2. What is the focus of the film?

3. Why is the time period significant?

4. Why do you think the film was/is so popular?

5. Make one prediction about what you think will happen in the film.

Lesson 3 – Reading to Learn

Select TWO tasks from the table to complete based on your own book.

Fiction and Non-fiction: Explain why you chose this text. Are you enjoying it so far? Why/why not?	**Fiction and Non-fiction:** Write a one paragraph summary of what you read today.	**Fiction:** Does this story remind you of any you have read/heard before? Why/why not? **Non-fiction:** How do you know this is a non-fiction text? Outline some of the features.
Fiction: Describe the setting of the story. **Non-fiction:** Make a short vocab list based on the topic in your text. Include the definitions.	**Free Space** Read a text of your choice for at least 30 minutes	**Fiction:** Compare and contrast two characters from the story. How are they alike? How are they different? **Non-fiction:** What do you still want to learn about the topic? How could you learn this?
Fiction: What are three predictions you have about this story? **Non-fiction:** What three questions could be answered from reading this text?	**Fiction and Non-fiction:** Rename the text you are reading. Provide three reasons for why you chose the title you did.	**Fiction and Non-fiction:** Create a visual representation of an important event/key piece of information from your chosen text

Lesson 4- Film techniques review

First	15 minutes of independent reading
Then	Read through the film techniques information
Next	Complete the activity and check your answers
Last	What is one film technique you would like to learn more about?

Film Techniques

Camera shots and angles
These are used to convey meaning, draw audience attention, emphasise a point and show setting

Music: a very powerful element in film. Can be used to build suspense, express emotion, create tension and signify change. Think about a film or tv show you have watched with a fight or battle scene, if you watched it on mute, how does the scene change?

Dialogue between characters: the script and acting between two or more characters that helps tell a story. Interactions between characters can also tell the viewer how characters feel about each other.

Scene transitions- in film refer to the transition from one shot or scene to the next. Scene transitions can:
Cut- very common. Can be used to simply transition from one characters perspective to the next, or from one scene to the next
Fade- transition between related scenes. As a softer cut it may be used to move back in time and suggest reminiscence
Dissolve- one shot briefly appears on top of another
Wipe- one scene replaces another by wiping it off the screen from left to right. Can be used to comical effect, to suggest competition between scenes and character POV.
Cross cut- the cut back and forth from one scene to another. Often used to express a relationship between one scene or moment and another
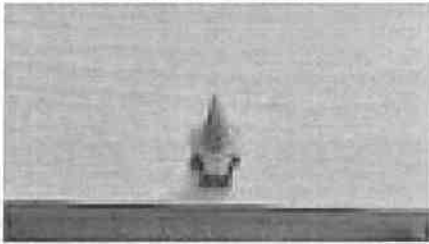
Shots

Shot	Example	Possible meaning
Extreme close up		Can be used to convey intimacy or a moment of significance
Close-up		Draws viewers attention to the object or character. Can signify the importance of the moment or thing
Medium Shot		Focus is on subject, with some significance given to context or background
Long Shot		Establishes the setting. Places subject in comparison to setting. Can suggest isolation
Aerial Shot		Established setting. Emphasises the vastness of a scene. Used to capture large moments like battles.

Angles

Shot	Example	Possible meaning
High angle		Can suggest subject is small or vulnerable Can convey the POV of a powerful character
Low angle		Can emphasise strength or power of a subject Can be used to create suspense
Zoom shot (camera movement from long shot to close up)		Isolates detail Places the subject within a context Used to focus on something important

Which film technique would you like to learn more about? Why?

Lesson 5- Plan your own lesson

First	15 minutes of independent reading
Then	Review the lesson you planned last term/choose a topic you would like to teach the class about
Next	Develop a presentation about your topic
Last	Create some activities to test your classmates on your chosen topic

Last term you had to design your own lesson to teach to the class.

If you completed this REVIEW your work and write a paragraph summarising what you will teach.

If you did not do this last term, create a mini plan here:

1. What will the topic of your lesson be?

2. How will you teach the class? Presentation, video, handout, book etc?

3. What activities will you give the students?

4. How will you check student understanding at the end of class? Questions/summaries/mini test etc?

Use this space for any extra notes.

Week 10

Lesson 6- Watch Remember the Titans

First	15 minutes of independent reading
Then	Watch the film 'Remember the Titans' on Clickview OR Disney Plus Use the following link: https://clickv.ie/w/V-0o Log in with these details: Username- student@seymour Password- password and search for the film.
Next	Write a short summary of the film
Last	What did you enjoy about the film?

Write your summary here:

What did you enjoy about the film?

Lesson 7- Remember the Titans activities

First	15 minutes of independent reading
Then	Complete the 'Remember the Titans' mind map
Next	Create a list of the top 5 significant events from the film
Last	How do you think the story would be similar if it was set in 2019?

List the top 5 significant events from the film here:

How do you think the story would be similar/different if it was set in 2019?

Provide one example of racism
from the start of the film- how does
it set up the atmosphere of the film?

Provide an example of racism
displayed by the team members
before/during the camp. How does
this impact how they play football?
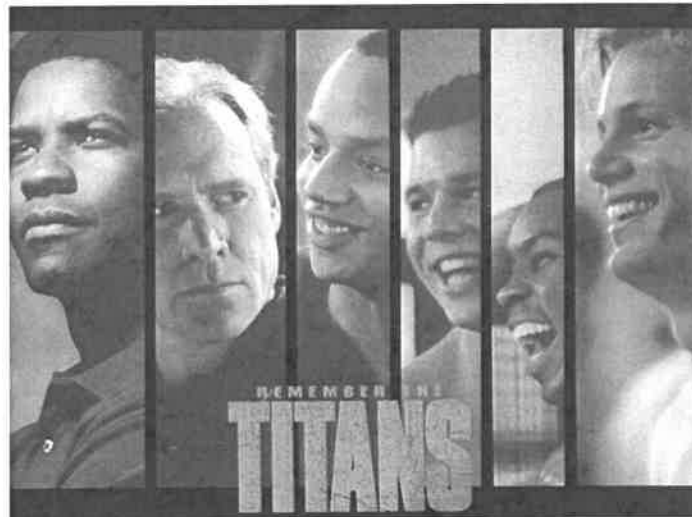
Provide an example of how the
team overcomes their racism?
Think of a specific event or
moment.

How do we see the town overcome
their racism throughout the film?

Lesson 8

Select TWO tasks from the table to complete based on your own book.

Fiction and Non-fiction: Explain why you chose this text. Are you enjoying it so far? Why/why not?	Fiction and Non-fiction: Write a one paragraph summary of what you read today.	Fiction: Does this story remind you of any you have read/heard before? Why/why not? Non-fiction: How do you know this is a non-fiction text? Outline some of the features.
Fiction: Describe the setting of the story. Non-fiction: Make a short vocab list based on the topic in your text. Include the definitions.	Free Space Read a text of your choice for at least 30 minutes	Fiction: Compare and contrast two characters from the story. How are they alike? How are they different? Non-fiction: What do you still want to learn about the topic? How could you learn this?
Fiction: What are three predictions you have about this story? Non-fiction: What three questions could be answered from reading this text?	Fiction and Non-fiction: Rename the text you are reading. Provide three reasons for why you chose the title you did.	Fiction and Non-fiction: Create a visual representation of an important event/key piece of information from your chosen text

Lesson 9- Catch up lesson

Use this lesson to catch up on any unfinished work.

14

Lesson 10- Fun Friday

First	15 minutes of independent reading
Then	Complete the '10 minutes to recognize the good stuff' activity
Next	Make a list of all the good things that happened last term
Last	Draw/find an image of something that makes you happy

10 MINUTES TO
RECOGNIZE THE GOOD STUFF

Date:

Things, people, and places you adore:

One thing you've worked hard to achieve:

One thing that's going well right now:
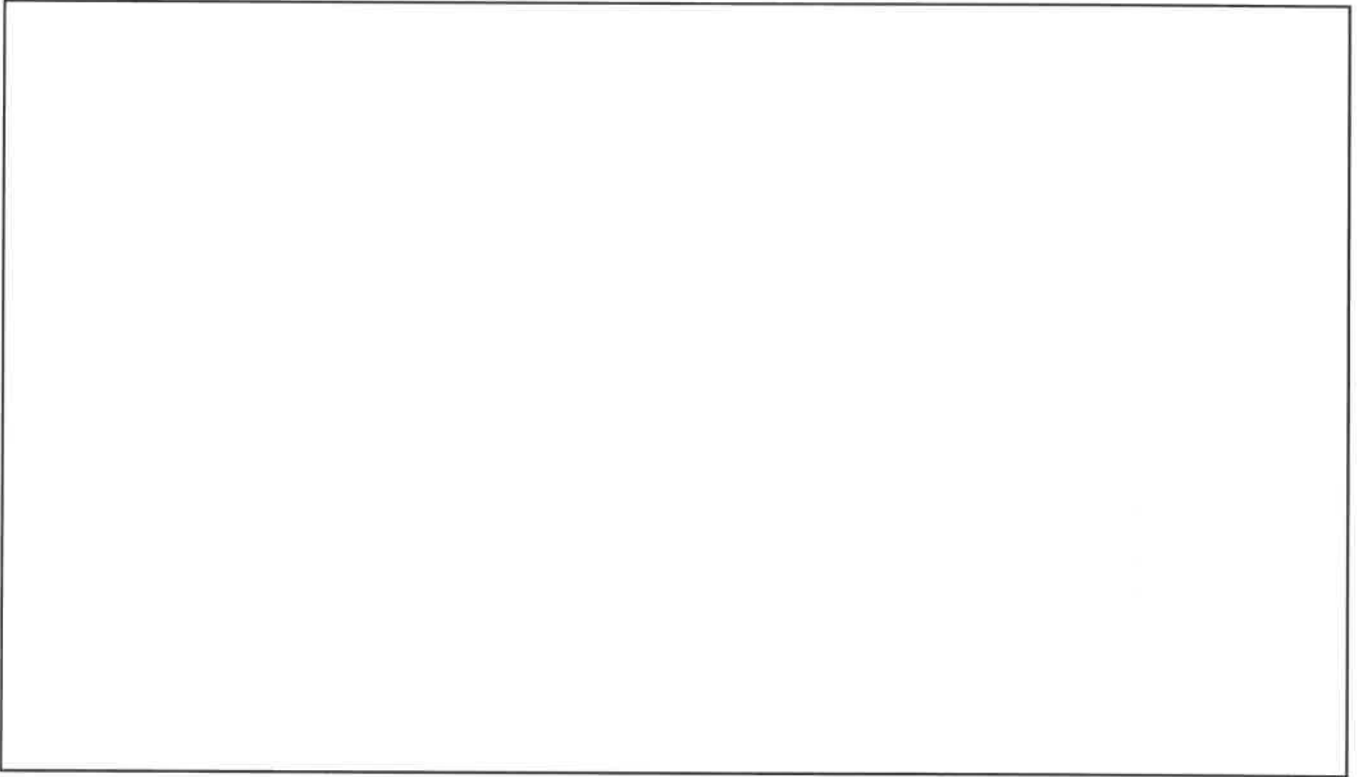
Two subjects or pursuits you're passionate about:

Two people you can count on for warm hugs and kind words:
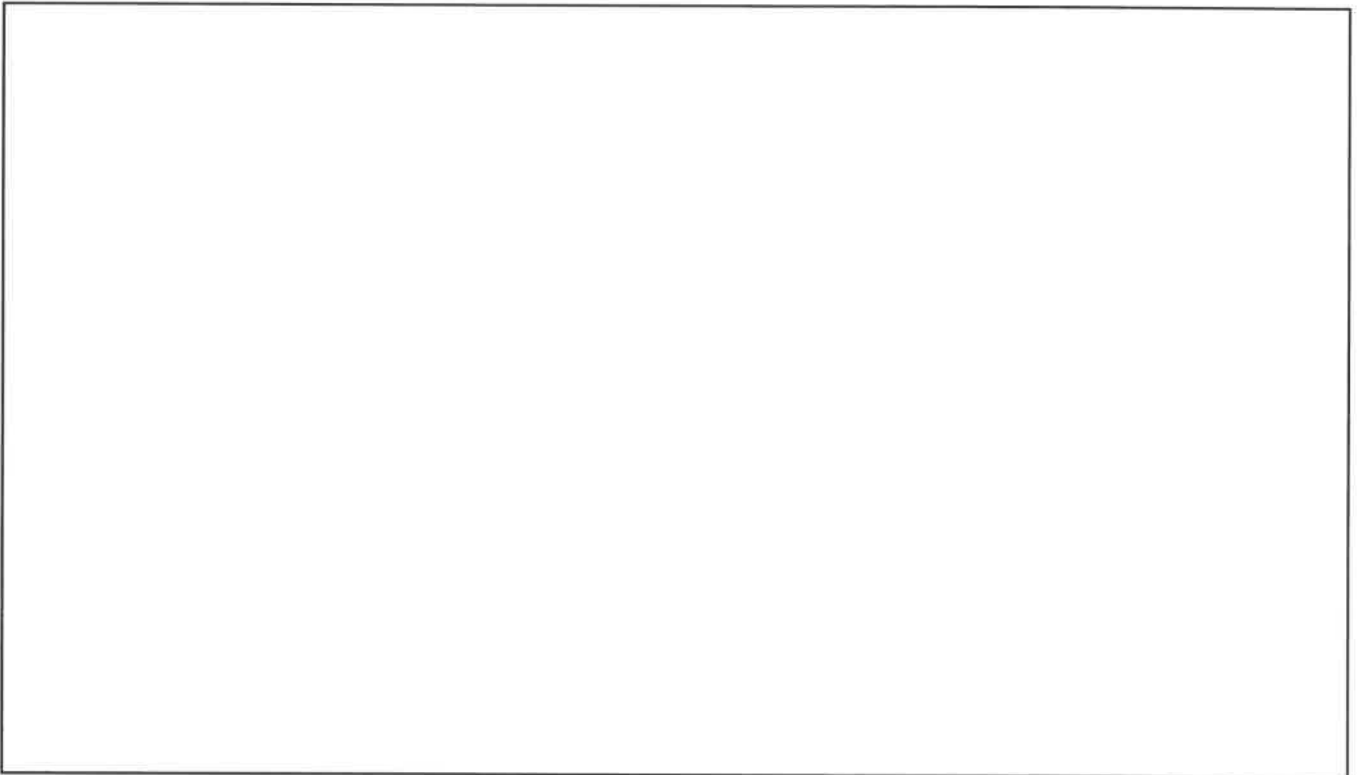
Three things to look forward to:

All the good things!

This is what makes me happy:

Bunny Jumps — 60 Second Challenge

How many bunny jumps over a bench or stool can you complete in 60 seconds?

Place two hands on the bench or stool and jump side to side making sure both feet go over the bench. To make it easier step over.

Achieve Gold — 80 bunny jumps
Achieve Silver — 60 bunny jumps
Achieve Bronze — 40 bunny jumps

Climb the Mountain — 60 Second Challenge

How many mountain climbers can you complete in 60 seconds?

Make sure you bring your knees up as you move, one at a time, your legs up and down.

Achieve Gold — 50 mountain climbers
Achieve Silver — 30 mountain climbers
Achieve Bronze — 20 mountain climbers

Fast Feet — 60 Second Challenge

How many times can you dribble a ball around a marker and back in 60 seconds?

Achieve Gold — 22 dribbles around the marker and back
Achieve Silver — 16 dribbles around the marker and back
Achieve Bronze — 10 dribbles around the marker and back

Speed Bounce — 60 Second Challenge

How many times can you bounce over a pillow in 60 seconds?

Both feet must land over the pillow for the jump to count.

Achieve Gold — 70 bounces
Achieve Silver — 50 bounces
Achieve Bronze — 30 bounces

Star Jumps — 60 Second Challenge

How many star jumps can you complete in 60 seconds?

Make sure you clap your hands above your head and bring your feet together.

Achieve Gold — 60 star jumps
Achieve Silver — 45 star jumps
Achieve Bronze — 30 star jumps

Tuck In, Tuck Out — 60 Second Challenge

How many times can you tuck your legs up to your chest and then extend them out in 60 seconds?

You must bring your legs up to your chest and then fully extend them out again!

Achieve Gold — 40 tuck in, tuck outs
Achieve Silver — 30 tuck outs
Achieve Bronze — 15 tuck in, tuck outs

The Plank — 60 Second Challenge

Can you hold the 'plank' position for 60 seconds?

Make sure you keep your bottom down and back straight. Keep your forearms on the floor.

Achieve Gold — 60 seconds or more
Achieve Silver — 45 seconds or more
Achieve Bronze — 30 seconds or more

Squat Jumps — 60 Second Challenge

How many squat jumps can you perform in 60 seconds?

Stand behind a line and jump forward, perform a squat and repeat.

Achieve Gold — 35 squat jumps
Achieve Silver — 25 squat jumps
Achieve Bronze — 10 squat jumps

Year 9/10 PE Scavenger Hunt

Directions: First find what you are looking for. Next, you will complete that task. For example, "find something to jump over" that could be a stick on the ground. After you've found it, you would run and jump over it. Once you complete the task, you can mark it off and keep going.

Find & Do the Activities Below

Find something to jump over _____

Find something to crawl under _____

Find something to throw overhand _____

Find something to climb _____

Find something to kick high in the air _____

Find something to run a lap around _____

Find something to balance on _____

Find something to knock over with a ball _____

Find something to catch (example- balls, insects, bugs) _____

Find something to ride for 10 minutes _____

Find something to balance on your head as you walk to the end of your drive way and back_____

Find something to skip around _____

See if you can find the following and then complete the exercise:

Find something smaller than your hand _____ Do 20 jumping jacks

Find something that feels bumpy _____ Do 15 squats

Find something that starts with the same letter as your first name _____ Do a 45 second plank

Find something the same colour as your eyes _____ Do 10 lunges per leg

Find something lighter than a feather _____ Do 8 push ups.

Extra challenge: How many points can you get?

Level 1 Start on 100 points	3 x ★	2 x (sit ups)	2 x (press ups)	Your Score
Level 2 Start on 100 points	3 x (press ups)	3 x (sit ups)	4 x ★	Your Score
Level 3 Start on 100 points	5 x (sit ups)	5 x (press ups)	5 x ★	Your Score

Key

= 5 Star Jumps
5 Points

= 5 Sit ups
5 Points

= 5 Press ups
5 Points

COLLAGE PART 1

Collage, from the term **French:** *coller*, "to glue" or "to stick together") is a technique of art creation, primarily used in the visual arts, but in music too. Artworks result from an assemblage (a collection of items) of different forms, thus creating a new artistic image.

A **collage** may sometimes include **magazine and newspaper clippings, ribbons, paint, bits of coloured or handmade papers, portions of other artwork or texts, photographs and other found objects**, glued to a piece of paper or canvas. The origins of collage can be traced back hundreds of years, but this technique made a dramatic reappearance in the early 20th century as an art form.

The term *collage* was coined by both **Georges Braque** and **Pablo Picasso** in the beginning of the 20th century when **collage** became a distinctive part of modern art movement **Cubism**.

Cubism was a revolutionary new approach to representing reality invented in around 1907–08 by artists Pablo Picasso and Georges Braque. They brought different views of subjects (usually objects or figures) together in the same picture, resulting in paintings that appear fragmented and abstracted.

One of the famous **Cubist** portraits painted by **Picasso** has been made with collage, using different kinds of paper (coloured tissue paper, newspaper and magazine fragments).

Tete d'une Femme Lisant (Head of a Woman Reading), 1953

Tete d'une Femme Lisant (Head of a Woman Reading), 1953 by Pablo Picasso

YOU ARE TO **PRODUCE YOUR OWN CUBIST INSPIRED PORTRAIT (FACE) COLLAGE**.

YOU WILL NEED SCISSORS AND GLUE AND A RANGE OF NEWSPAPERS, MAGAZINES, COLOURED PAPER THAT YOU ARE ALLOWED TO CUT UP.

LOOK AT THE EXAMPLES ON THE FOLLOWING PAGES FOR INSPIRATION. YOUR WORK AS MINIMUM SHOULD BE PRODUCE ON AN A4 SIZED PIECE OF PAPER. IT CAN BE STRANGE, ODD AND HUMOROUS.