

Science@BTPS

To nurture **Every**
Child to be a **Self-**
directed Inquirer of
Science Around Us

P6 Science
Parents Briefing 2022

P6 Science Assessment

Term	Assessment	Topics Tested
1	Continual Assessment	Energy book All P3-P5 topics
2	Semestrial Assessment	Energy Book + Interactions Book (Ch1 to Ch 3) All P3-P5 topics
3	Preliminary Assessment	All topics from P3-6

P6 Assessment Format

Duration: 1 h 45 min (Std Sci)		Total marks
MCQ	28 Qn: 2 marks each	56
Open-ended	12-13 Qn: 2-5 mark each	44
Topics	All topics from P3-P5	100

Duration: 1 h 15 min (Fdn Sci)		Total marks
MCQ	18 Qn: 2 marks each	36
Structured	6-7 Qn: 2-3 marks each	14
Open-ended	5-6 Qn: 2-4 marks each	20
Topics	All topics from P3-P5	70

P6: Science Programme

- Inquiry-based Learning Approach
- SAM Journal → Document learning, Important Science Words
- Tackling OE Questions using CER approach
- Formative assessment: Topical Checklist, CRI, Examination Review
- Revision: Topical papers, Exam Practice, PSLE Booklet (Std & Fdn)



Kimiko Fernandez
6 Respect 2021

Topical Checklist and Examination Review

Self-Assessment on Reproduction Process in Humans and Flowering Plants

Choose the level that describes how well you have understood each of the Science ideas.

Levels	Descriptors
1	I have understood this Science idea the least . (I don't get it)
2	I have some understanding about this Science idea. (I partially get it)
3	I have understood this Science idea very well and can explain it to my friend. (I get it)



No.	Science ideas and Skills	Levels		
		1	2	3
1.	I understand that living things reproduce to ensure continuity of their kind.			
2.	I can state the characteristics of an organism that are passed on from parents to their <u>off-spring</u> .			
3.	I know the process of fertilisation in the sexual reproduction of humans.			
4.	I understand the process of pollination in the sexual reproduction of flowering plants.			
5.	I understand the process of Fertilisation in the reproduction of flowering plants.			
6.	I understand the process of Seed Dispersal in the reproduction of flowering plants.			
7.	I can compare the process of fertilisation in the sexual reproduction of			

Primary 4 Science SA1 Review 2019

Pupils have generally done well in the following areas:

Process Skills: Observation and Classification

Pupils were able to identify living things and non-living things (Q1). They were able to identify the characteristics of living things based on the data given (Q2). Pupils were able to identify the correct property of material based on the bar graph given (Q4). Pupils can identify life cycles of the animal that they are required to know and stating similarities or differences based on the diagram given (Q5 and Q6). Pupils were able to identify how a seed germinates (Q12) and what happens as it grows from a seedling to an adult plant (Q7 and Q9).

They were able to identify a non-example of matter (Q13) and understand the properties of matter (Q14). Pupils were able to conclude the characteristics of solid, liquid or gas in a given set-up (Q15, Q16, Q17 and Q20). They were able to identify that digestion ends in the small intestine (Q24).

They are generally able to read flowcharts and tables by using the information for answering of the question (Q11, Q27 and Q28).

Science ideas that need review:

Areas for Improvement	Answers Given	Learning Point
Incomplete explanation		
Q27. Name the process of fertilisation in the sexual reproduction of	Q27. Fertilisation is the process of fusion of male and female gametes to form a zygote.	Q27. Fertilisation is the process of fusion of male and female gametes to form a zygote.

Certainty Response Index

Bukit Timah Primary - Certainty of Response Index (CRI)

CRI 1: Wild Guess **CRI 2:** Reasonable Guess

CRI 3: Fairly Sure **CRI 4:** Sure

Qn	CRI 1	CRI 2	CRI 3	CRI 4	CRI 1/2 Correct	CRI 3/4 Wrong	Action to be taken
1							

C-E-R Framework

McNeill & Krajcik (2012)

- **Claim**
 - *the answer/conclusion about a problem*
- **Evidence**
 - *Scientific data (information/clues) in the question that is appropriate to support your claim*
- **Reasoning**
 - *Justification using scientific concepts*



Engage
I Pose Questions



Explore
I Actively
Look for
Answers



Explain
I Explain my
Thinking

5 Learning Behaviours



Elaborate
I Link what I
Learn to Life

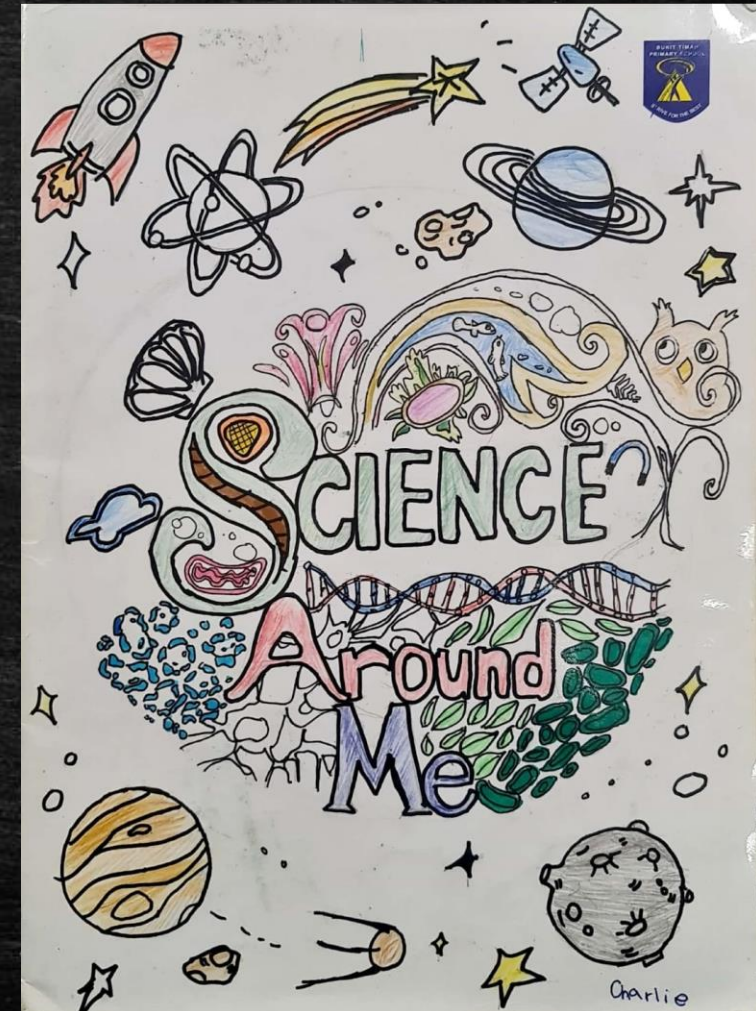


Evaluate I Reflect on my Learning

4 Things we want to see in the Journals


- 1) Strives for the best
- 2) Poses questions to find out more
- 3) Explain thinking using relevant science concepts
- 4) Links science learning to life

Cho Chan Hyeong
6 Adaptability 2021



6 Graciousness 2021 – Best Entries

Draw your favourite food (Task 4) Chicken rice:D



energy from sun

① The sun shines on the grass which used the light to undergo photosynthesis to produce sugar for the plant which has sun energy and the chicken eats the grass so the chicken has energy and we eat the chicken so we have energy.

② The sun shines down on the rice plant and it has energy so when we eat it we have energy.

③ The sun shines down on the vegetables and it traps the light and it now has energy and when we eat it we will get the energy.

Good detailed explanation!

Liaw Qi Xuan
Gerris

WHAT! Identify effect of energy on object

Gravitational Potential Energy → Kinetic Energy → Gravitational Potential Energy

To show that it has energy, the rubber ball can be thrown on the floor, upward and forward.

The ball got its energy from the hand that throws the ball.

I can throw the ball from a higher place. I can use a heavier ball.

The object will bounce more. It will roll further.

Toy 1: Toy Car

Description: to show that it has energy, by using my hand and push the car forward.

What do you do to the object to show that it has energy?

I do by pushing the object forward or backward.

Energy comes from: the food that I eat and the energy.

What can you do to increase the energy of the object?

→ By pushing harder.

What happens to the object when the energy increases?

→ It will go faster and further.

Toy 2: Spring

Description: to show that it has energy, by using my finger to press down.

What do you do to the object to show that it has energy?

→ I do by compressing the spring downwards.

Energy comes from: By the food I eat.

What can you do to increasing the energy of the object?

→ By compressing the spring down even more.

What happens to the object when the energy increases?

→ It will bounce higher as I compress the spring lower.

What energy does it have?

Nice job!
You managed to identify what will happen when energy is increased.

Lightbulb
chemical potential energy ⇒ Electrical Energy ⇒ light energy ⇒ heat energy

Tan Soh Hwee Meghan

6 Respect 2021 – Best Entries

hydro-electric power station

Advantages

- does not cause air pollution
- renewable source of energy

Disadvantages

- dam will block habitats

Differences

regular	hydroelectric
produce electricity by burning fossil fuels	produce electricity by flowing water
pollutes the air	blocking of water affecting fish and other organisms in the water
easier to build where fossil fuels are available	expensive to build

Gravitational potential energy → Kinetic energy → Electrical energy → Electrical energy

Weld done!

Soh Jia Hao

Hee Jia Xin Tiffany

- Potential Energy
- Kinetic Energy
- Light Energy
- Heat Energy
- Sound Energy
- Electrical Energy

- Light energy comes from the sun
- Light energy, together with water and carbon dioxide, is needed by plants during photosynthesis to make food

- Chlorophyll is a green pigment found on chloroplasts.
- Chloroplasts are mostly found in the leaves.
- Carbon dioxide is able to enter the plants via tiny openings called stomata, which are found mostly on the underside of the leaves.

- In the day, where there is sunlight, the guard cell open the stoma to allow gaseous exchange during photosynthesis.
- At night, the guard cells tend to close the stoma to prevent excess loss of water.

Singular (stoma)
Plural (stomata)

Guard cell (helps to control the size of the stomata)

used by plant for respiration, growing & other activities


Sugar (glucose) → Excess sugar stored as starch → In other parts of plant (e.g. root, leaves, tubers)

6 Adaptability 2021 – Best Entries

1-2-2021

ENERGY IN TOYS

Yo-yo



How to play:


- 1 Slip the ring on your yo-yo's string onto your middle finger. It's best to keep it around your first knuckle, near the tip of your finger. If it's at the base of your finger, it'll be hard to rotate the string around your hand.
- 2 Turn your hand palm-side up, with the yo-yo in your palm. Now hold onto it. This is the position you'll return to almost always.
- 3 Give it a sharp tug when the yo-yo is fully extended to bring it back. It's only right before the tug yo-yo need to rotate your palm to the floor. It's this part of the move that makes it important the string is near the tip of your finger.

Energy(s) involved:

- 1 There is gravitational potential energy when it is held on hand.
- 2 When the yo-yo is fully extended, it has elastic potential energy to bring it back to the hand.
- 3 It also have heat energy produced as heat transfer takes place between the hand and the yo-yo.

For a more basic move, start with your palm facing down. Then with an upward movement of your arm and an extension of your fingers, release the yo-yo. With this variation, you don't need to worry about rotating your palm (but you get less speed).

Beyblade



How to play:

- 1 Insert the non-burst lock part of the beyblade into the launcher.
- 2 Hold the body of the launcher with either your right or left hand.
- 3 Hold the string with your other hand and pull.

Energy(s) involved:

- 1 There is gravitational potential energy when the beyblade is attached to the launcher.
- 2 When the beyblade lands in the stadium, there is a loud sound and the beyblade spins. There is sound energy and kinetic energy. Also, heat transfer takes place and produces heat energy.
- 3 When the beyblade launcher's string is extended, it will retract due to elastic potential energy.

Launcher

Chin Lok Hee

ADAPTATIONS

waft: Understand what is an adaptation. identify the examples of adaptations in different living things.

No.	Animal	How do they adapt to the environment
1	Gerenuk	Hip joints are so flexible that its backbone can swivel until it can stand up completely on its back legs to reach the food. Once in position, its slender head and bendy tongue nibble the tiny leaves between the branches.
2	Polar Bear	They have a thick coat of fur made up of hollow hairs which keep them warm and enable them to stay afloat. Small ears help keep the water out and stop their eardrums from freezing. It has long hairs between the pads on their feet help them grip the ice.
3	Venus Flytrap	Leaves of the plant help it survive in soils which don't have many nutrients. Plant is able to get extra nutrients from the insects it catches and digests.
4	Penguin	They have two types of feathers. They have a thick, outer feather which works like a rain coat, it keeps the water out. They also have a thick, downy coat underneath their outer layer and that keeps air trapped inside and keeps them really well insulated so they can survive extreme temperatures in the Antarctic.

PHYSICAL ADAPTATIONS:

Gerenuk — Hip joints are so flexible that its backbone can swivel until it can stand up completely on its back legs to reach food.

Polar bear — thick fur to keep it warm during winter.

Venus fly trap — leaves of the plant will close when insect is inside.

Penguin — Have 2 types of feathers.

Behavioral Adaptations:

- Gerenuk — stands on its hind legs to reach food
- Polar bear — very strong swimmers
- Venus fly trap — digest insects it catches for nutrients
- Penguin — stay close together to keep warm.

Davina Long
Xue En

6 Compassion 2021 – Best Entries

The Letter

Dear British Divers,

Thank you for risking your lives to save someone that wasn't even your own race, or from your own country. You were brave and strong and went into the cave without hesitation, willing to help to the best of your abilities. 2 of you, John Volanthen and Richard Stanton, helped to play a major role in the rescue as you located the boys and called for help.

Congratulations, for receiving your Pride of Britain 2018 award for "Outstanding Bravery". The rescued children also attended, so were you happy to see them back in shape? 7 of you received prestigious prizes, Stanton and Volanthen receiving the George Medal; Jewell and Mallinson receiving the Queen's Gallantry Medal; and Josh Bratchley, Connor Roe, and Vern Unsworth being appointed as Members of the Order of the British Empire. Congratulations!

Here's some fun facts, did you know that there was only one English-language speaker and he communicated with Stanton and Volanthen, did you know that the eldest of the team, Night, celebrated his birthday while trapped in the cave? The assistant coach was also a former monk!

I hope I have given you a good laugh and brought up your spirits if you are feeling down. Once again, congratulations and a big thank you.

Warmest Regards,
Ryan Wang

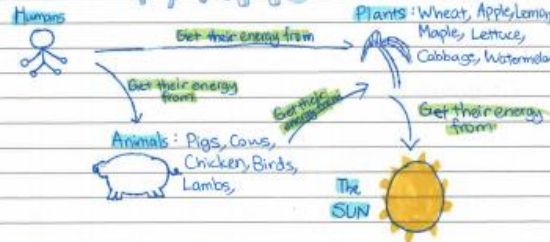
I admire your courage and resilience and how you managed to brave through the water and swim trials. You were brave and even ate as a great swimmer with some no-go areas too.

Aside note to the survivors: You were resilient and stayed strong throughout the entire phase of the rescue. Good job being each other's support and staying strong.

Thank you!
I enjoyed reading your letter.

PERSEVERANCE is KEY to

ENERGY PATHS



In conclusion, all animals and plants, including humans, get their energy either Directly or Indirectly from the Sun.

Energy from the Sun becomes stored in plants (seeds, leaves), and when animals eat the plants, the energy is transferred to the animal, and animals such as the cows or chickens will get us milk and eggs for daily consumption. And these are what we call **ENERGY PATHS**.

Energy Paths are important because without them, we would have already died. Actually, nothing would survive, because every single organism cannot get any

to carry out life processes, which causes them to die. That's why the **ENERGY PATH** is essential for all living things.

Effect of Light Intensity on Rate Of Photosynthesis

My Investigation Questions:

How does the amount of Light affect the Rate of Photosynthesis?

Hypothesis

The greater the amount of light, the greater the amount of oxygen bubbles.

What do I need?



Changed Variable

Light Intensity

Fixed Variable

- Location of the experiment
- Amount of water in the beaker
- Same beaker
- Same plant

Measured Variable To measure the number of oxygen bubbles

How to conduct the experiment?

- Place the water plant into the test tube with SHCS, and ensure that it is fully submerged under the SHCS.
- Place the test tube 10cm from the lamp and turn the amount of light shone by the lamp to 1 unit.
- Count the number of bubbles produced in the test tube in 1 min and record it down.
- Turn the amount of light shone by the lamp to 2 units and repeat Step 3.
- Turn the amount of light shone by the lamp to 3 units and repeat Step 3.
- Turn the amount of light shone by the lamp to 4 units and repeat Step 3.
- Turn the amount of light shone by the lamp to 5 units and repeat Step 3.
- Turn the amount of light shone by the lamp to 6 units and repeat Step 3.

		Amount of Time (1 min)					
Amount of LIGHT	No. of BUBBLES	1	2	3	4	5	6
		19	34	53	53	53	53

CONCLUSION

Based on the data, the number of oxygen increased when the light intensity increased. This means that the rate of photosynthesis increases when the light intensity increases.

Ryan Wang

Official-open/Non-Sensitive

6 Integrity 2021 – Best Entries

Yohanna

Trace the energy based on a food item such as sandwich, fried rice etc. Present it in a 6-box comic strip format. (Choose 1 food to work on)

Orange Juice

1. The oranges are grown on the tree.

2. The oranges are harvested and put in a box.

3. The oranges are transported to the juicer.

4. The oranges are put in the juicer.

5. The juice is squeezed out of the oranges.

6. The juice is poured into a glass.

Impressive!

Yohanna, I really enjoyed reading your entries! You put in effort to do your research and present your work in a creative way! Keep it up!

LOVE

MUJI CRACKERS

Energy - what is it?
Food energy is defined as the energy released from carbohydrates, fats, proteins, and other organic compounds.

why do we need it?
Energy fuels your body's internal functions, builds and maintains cells and body tissues, and supports the external activities that enable you to interact with the physical world. **WATER**, your body's most important nutrient, helps facilitate the chemical reactions that produce energy from food.

cholesterol
what is it?
cholesterol is an organic molecule.

why do we need it?
we need a small amount of blood cholesterol because the body uses it to: build structure of cell membranes, make hormones like oestrogen, testosterone and adrenal hormones. It helps our metabolism work efficiently, for example, cholesterol is essential for our body to produce vitamin D.

Senario No.1

Explanation:
The energy from the sun is captured by the grass then transferred to the cow when it eats the grass then to the milk it produces then to us when we drink the milk.

Senario No.2

Explanation:
The energy from the sun is captured by the wheat plant is then transferred to the chicken when it eats its grains then to us when we eat the chicken.

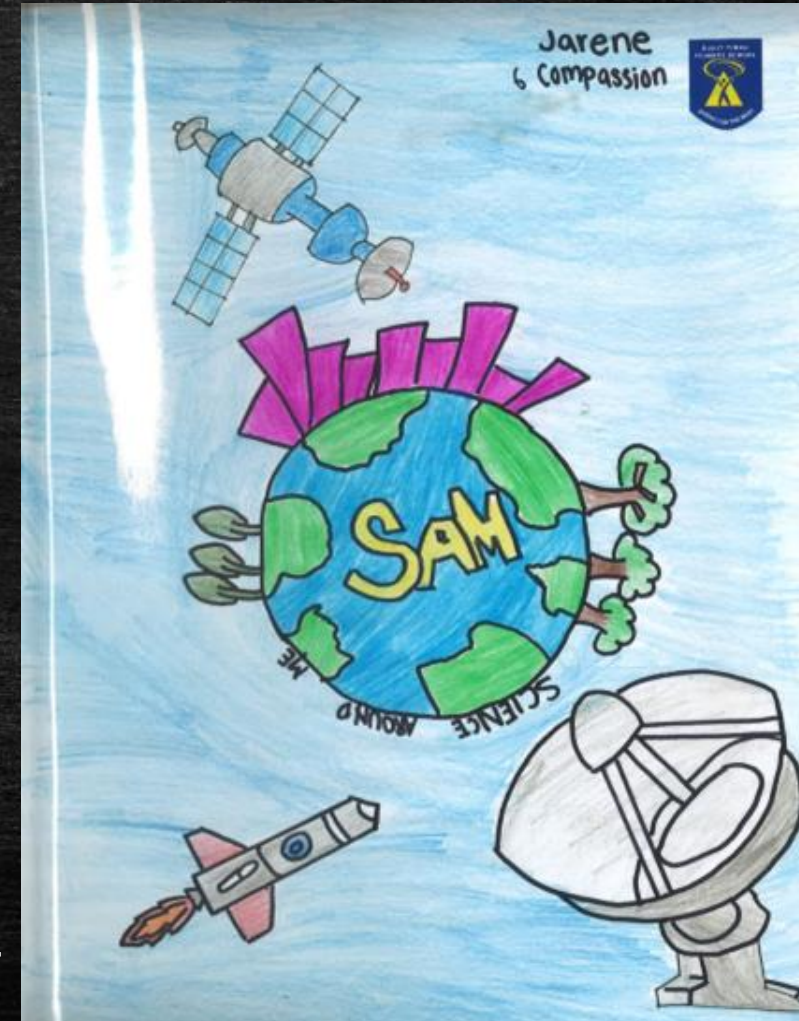
Impressive! Still entries! Keep up the great work. Amee! I really enjoyed reading your story!

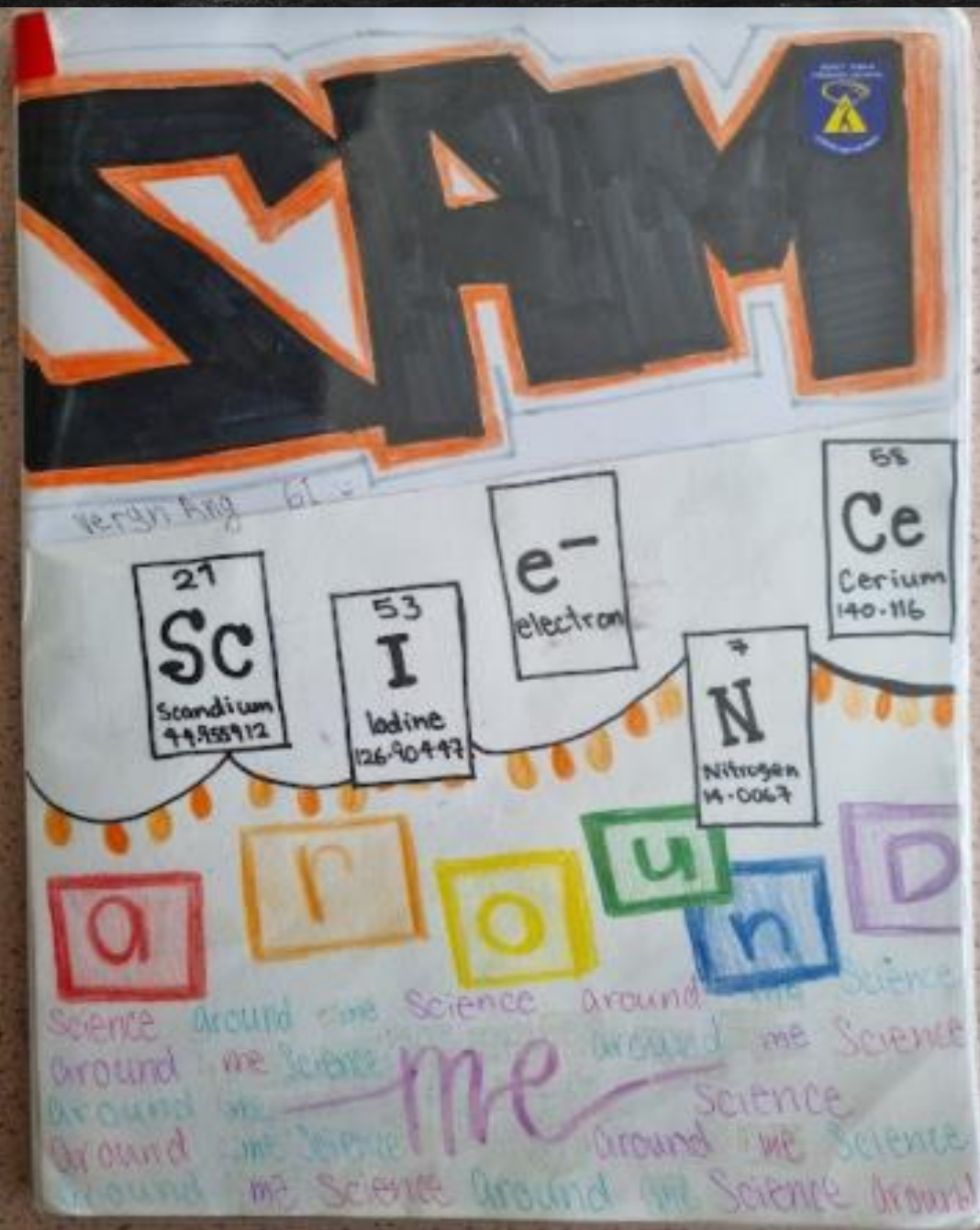
Aimee

How to support your child?

- Revise the concepts in textbooks.
- Do **MindMaps** to sum up knowledge
- **Look through** the exam/practice papers done in P5/P6.
- Encourage them to ask questions

Jarene Neo
6 Compassion 2021





Thank you!

Veryn
6 Integrity 2021