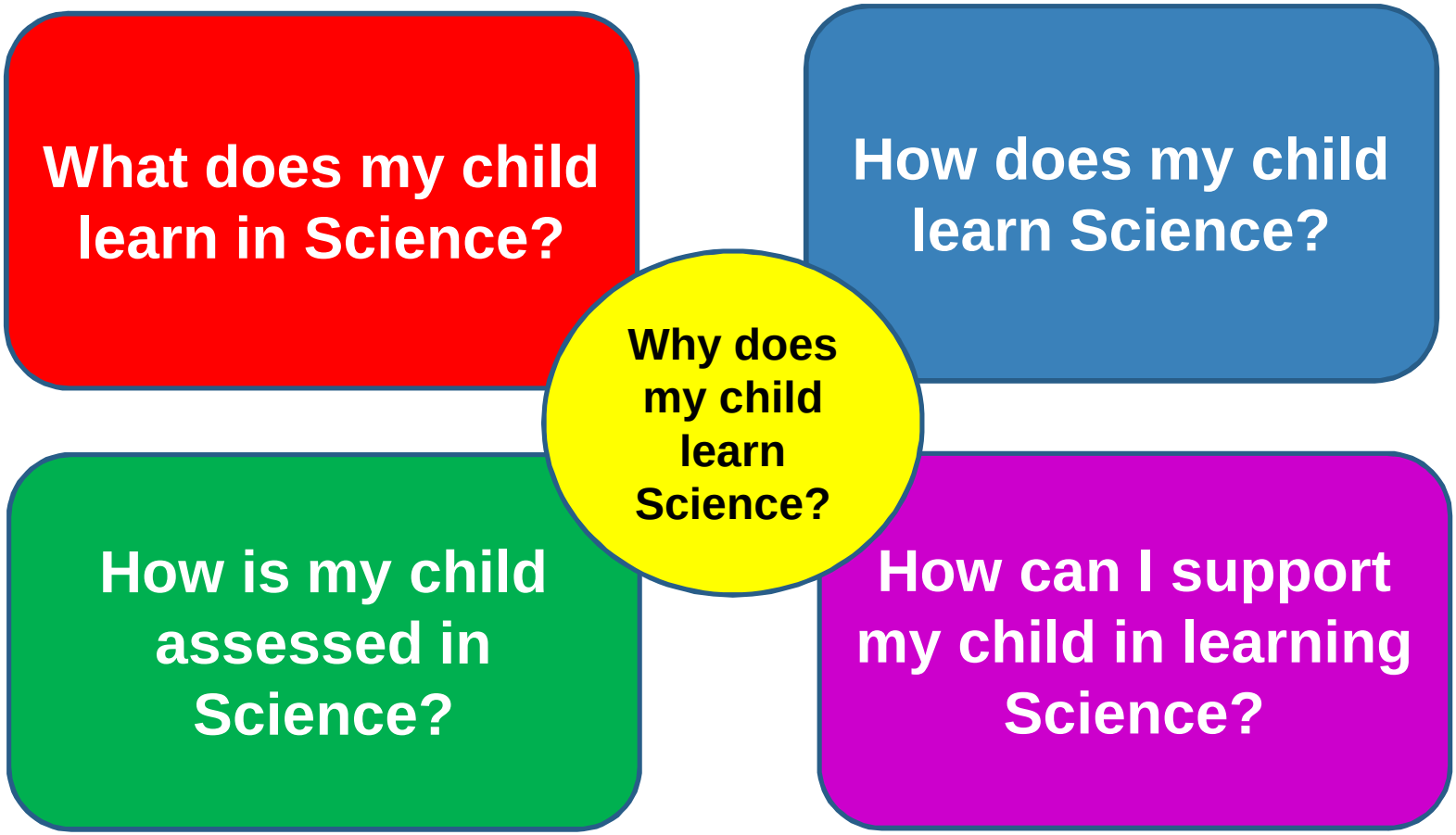
SCIENCE

RESPECT

TEAMWORK

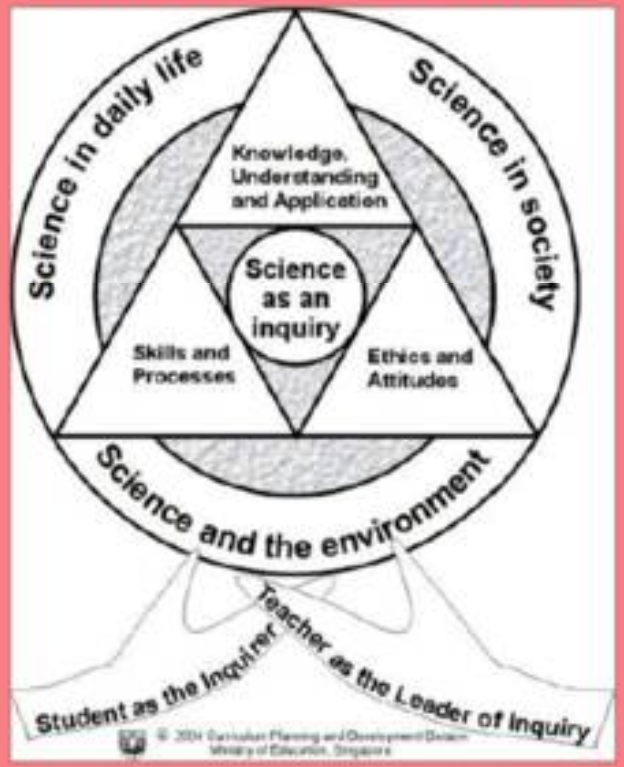
RESPONSIBILTY

LIFELONG LEARNING


What does my child learn in Science?
How does my child learn Science?
Why does my child learn Science?
How is my child assessed in Science?
How can I support my child in learning Science?

2014 Primary Science Syllabus…

Science Curriculum Framework



Primary Education Review & Implementation

Balancing Knowledge with Skills and Values

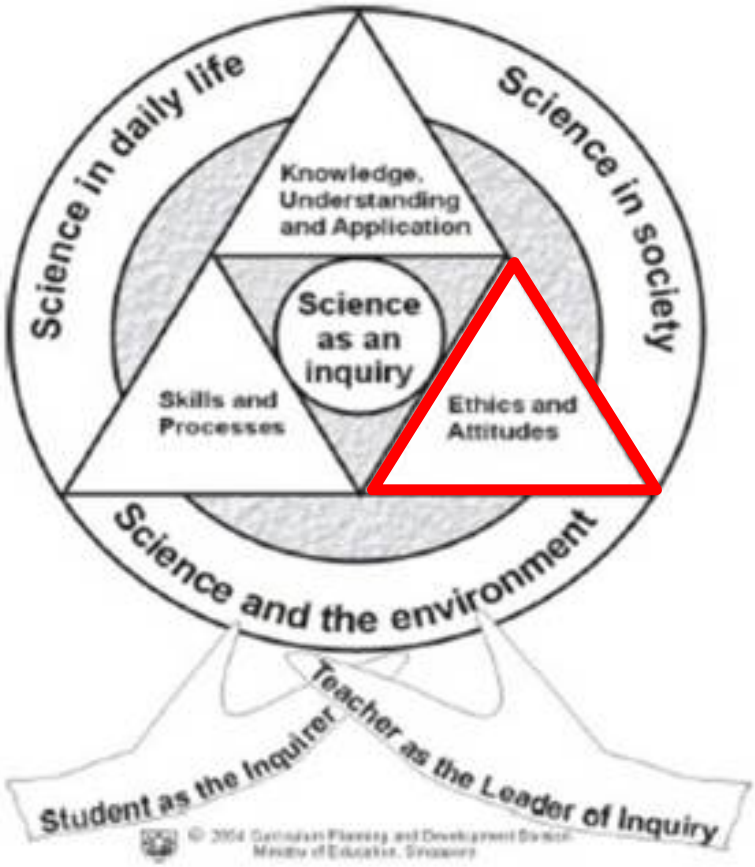
Engaging pedagogy to teach skills and values
More holistic assessment to support learning

Investing in a Quality Teaching Force

Equipping teachers well through training and Professional development

21st Century Competencies Framework

The Science Curriculum Framework is derived from the Policy Framework for the Teaching and Learning of Science. It encapsulates the thrust of science education in Singapore to prepare our students to be sufficiently adept as effective citizens, able to function in and contribute to an increasingly technologically-driven world.



Skills and Processes	Engaging with an event, phenomenon or problem through:	Collecting and presenting evidence through:	Reasoning; making meaning of information and evidence through:
Skills	• Formulating hypothesis • Generating possibilities • Predicting	• Observing • Using apparatus and equipment •	• Comparing • Classifying • Inferring • Analysing • Evaluating
	Communicating		
Processes	Creative problem-solving, investigation and Decision-making		
Essential Features of Inquiry	Question	Evidence	Explain Connect
	Communication		

- ***Curiosity***
  Desire to explore the environment and question what they find.

- ***Creativity***
  Suggest innovative and relevant ways to solve problems.

- ***Integrity***
  Handle and communicate data and information with integrity.

- ***Objectivity***
  Seek data and information to validate observations and explanations objectively.

- ***Open-mindedness***
  Accept all knowledge as tentative and willing to change their view if the evidence is convincing.

- ***Perseverance***
  Pursue a problem until a satisfactory solution is found.

- ***Responsibility***
  Show care and concern for living things and awareness of the responsibility they have for the quality of the environment.

Syllabus Requirement		
Themes	* **Lower Block (Primary 3 and 4)**	** **Upper Block (Primary 5 and 6)**
Diversity	• Diversity of living and non-living things (General characteristics and classification) • Diversity of materials **BPPS P3**	
Cycles	• Cycles in plants and animals (Life cycles) • Cycles in matter and water (Matter) **BPPS P4**	• Cycles in plants and animals (Reproduction) • Cycles in matter and water (Water) **BPPS P5**
Systems	• Plant system (Plant parts and functions) • Human system (Digestive system) **BPPS P3**	• Plant system (Respiratory and circulatory systems) • Human system (Respiratory and circulatory systems) • Cell system • Electrical system **BPPS P5**
Interactions	• Interaction of forces (Magnets) **BPPS P3**	• Interaction of forces (Frictional force, gravitational force, force in springs) **BPPS P6** • Interaction within the environment
Energy	• Energy forms and uses (Light and heat) **BPPS P4**	• Energy forms and uses (Photosynthesis) • Energy conversion **BPPS P6**

Topics which are underlined are not required for students taking Foundation Science.

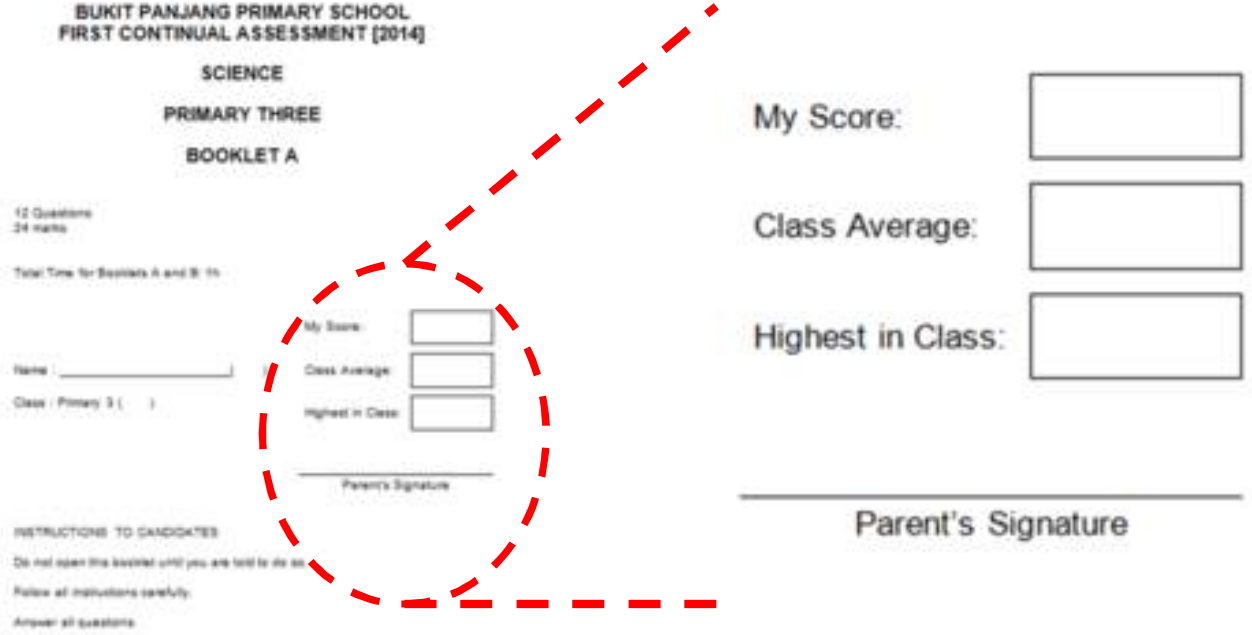
Relating *scientific skills and processes* to *essential features of inquiry*

	Engaging with an event, phenomenon or problem through:	**Collecting and presenting evidence through:**	**Reasoning; Making meaning of information and evidence through:**
Skills	• Formulating hypothesis • Generating possibilities • Predicting	• Observing • Using apparatus and equipment	• Comparing • Classifying • Inferring • Analysing • Evaluating
	Communicating		
Processes	Creative problem-solving, Investigation and Decision-making		
Essential Features of Inquiry	Question	Evidence	Explain Connect
	Communication		

2016 Primary 3 Assessment Plan

Subject	Term 1 (10%)	Term 2 (20%)	Term 3 (10%)	Term 4 (60%)
Science	▪ Practical (2%) • Basic Process Skills • (Term 1 Week 5) ▪ CA1 (8%)	▪ Diversity: Designing a Toy Sail Boat ▪ SA1 (20%)	▪ Practical (2%) • Basic Process Skills • (Term 3 Week 5) ▪ CA2 (8%)	▪ System: My Digestive System ▪ SA2 (60%)

Continual and Semestral Assessments



P3 Science Continual Assessment in BPPS

	Booklet	Type of questions	No. of questions	Number of Marks per Question	Weighting
1h	**A**	Multiple-choice	12	2	**24**
	B	Open-ended	5	2 - 5	**16**
				Subtotal	**40**
	+ Practical (focussing on process skills)				**10**
	TOTAL				**50**

Varied the number of items and total marks to reduce over-testing of concepts and skills.
Adjusted the format and demand of assessment papers accordingly.

P3 Science Semestral Assessment in BPPS

1h 30min

Booklet	Type of questions	No. of questions	Number of Marks per Question	Weighting
A	Multiple-choice	**24**	2	**48**
B	Open-ended	**10**	2-5	**32**
TOTAL				**80**

Varied the number of items and total marks to reduce over-testing of concepts and skills.
Adjusted the format and demand of assessment papers accordingly.

Number of Science Periods per week

P3 Science	4
P4 Science	4
P5 Science	6
P6 Science	6

Note: Equal weighting for Science at PSLE
PSLE Aggregate score = sum of t-score for English, Mother Tongue, Mathematics and Science

P3 Science Practical 1 2014

In front of you are two objects, **A** and **B**, and a magnifying glass.

a) Look at object **A** carefully.

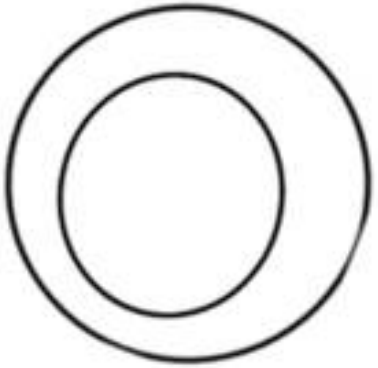
In the space provided,

- Draw object **A**.

Focusing on Process Skills

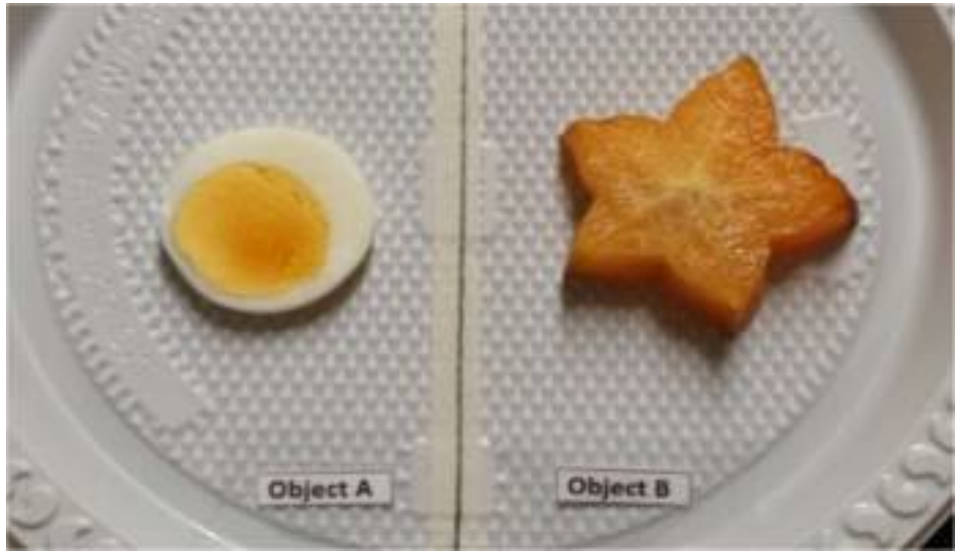
What is expected.

Drawing of Object A



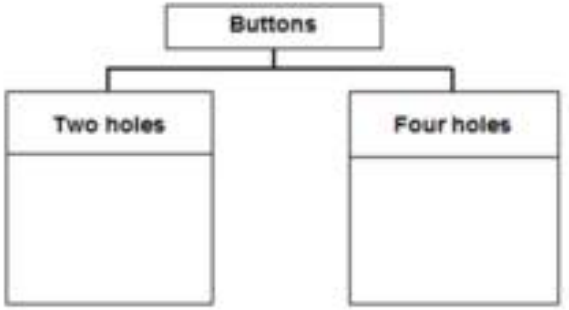
b) Compare objects A and B.

State **one difference** between the **shapes** of the two objects.

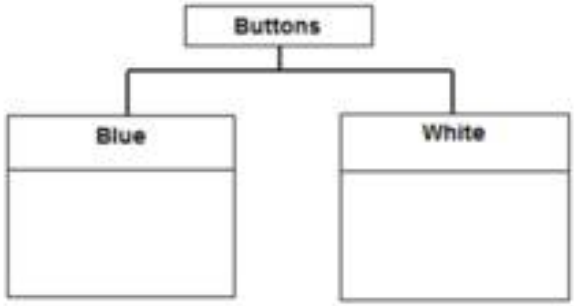


Skills:
Observing and classifying

a) In the table below, classify buttons **W, X, Y** and **Z** based on the number of holes they have. Write the letters, **W, X, Y** and **Z,** in the correct groups.



b) In the table below, reclassify buttons **W, X, Y** and **Z** based on their colour. Write the letters, **W, X, Y** and **Z,** in the correct groups.



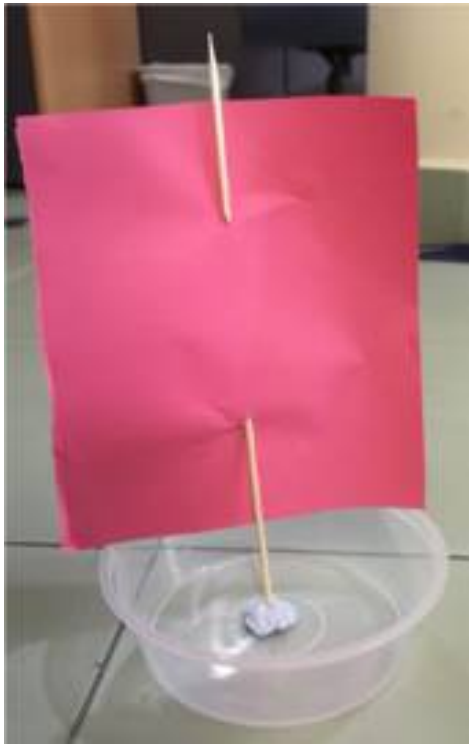
Self Assessment Rubrics

Process Skill(s)	Level 1 ☺ (Just started)	Level 2 ☺ ☺ (Getting There)	Level 3 ☺ ☺ ☺ (Got it!)
Observing and Communicating	I am not able to observe and draw the cross-section of object A.	I am able to observe and draw the cross-section of object A.	I am able to observe and draw the cross-section of object A clearly.
Comparing	I am not able to compare and identify the difference in shape between the two objects.		I am able to compare and identify the difference in shape between the two given objects.

Learning Outcomes		
Knowledge, Understanding and Application	**Skills and Processes**	**Ethics and Attitudes**
	Diversity of Materials (P3 and P4)	
• *Relate the use of various types of materials (ceramic, fabric, glass, metal, plastics, rubber, wood) to their physical properties.	• *Compare physical properties of materials based on: - strength - flexibility - waterproof - transparency - ability to float/sink in water *Note:* *- The focus is on how the properties of materials are used.* *- The "strength" of a material is its ability to be subjected to loads without breaking.* *- The "flexibility" of a material is its ability to bend without breaking.* *- A material is "waterproof" when it does not absorb water.* *-The "transparency" of a material refers to whether the material allows most/some or no light to pass through. (The use of terms – transparent/ translucent/opaque is not required).*	• *Show objectivity by using data and information to validate observations and explanations about the properties and uses of materials.

Diversity: Designing a Toy Sail Boat

Diversity: Designing a Toy Sail Boat



BUKIT PANJANG PRIMARY SCHOOL
PRIMARY THREE
SCIENCE FORMATIVE TASK

DESIGN A TOY SAIL BOAT

Group Name: _____ Date: _____

Class: 3 ( )

Names of group members:

(1) _____ ( )
(2) _____ ( )
(3) _____ ( )
(4) _____ ( )

Aim: To design and build a toy sail boat, which can float and sail.

1. Study the parts of a sail boat below. Before you build the toy sail boat, you must know the functions of the main parts of a sail boat.

2. Draw lines to match the main parts of the sail boat to their functions.

Hull	Catches wind to move the boat along the water.
Mast	Carries people and things
Sail	Supports and holds up the sail

3. Discuss with your group the choice of materials and the design of the toy sail boat.

4. State the items your group has chosen and what material they are made of. **Explain your choice** by ticking (✓) **two** boxes that show two **main properties** of the material that your group has chosen.

The hull:

We have chosen _____ (item) because it is made of _____ (material) which

☐ is strong	☐ sinks in water
☐ is weak	☐ floats on water
☐ is flexible	☐ allows most light to pass through
☐ is stiff	☐ allows some light to pass through
☐ absorbs water	☐ does not allow light to pass through
☐ does not absorb water	

The mast:

We have chosen _____ (item) because it is made of _____ (material) which

☐ is strong	☐ sinks in water
☐ is weak	☐ floats on water
☐ is flexible	☐ allows most light to pass through
☐ is stiff	☐ allows some light to pass through
☐ absorbs water	☐ does not allow light to pass through
☐ does not absorb water	

The sail:

We have chosen _____ (item) because it is made of _____ (material) which

☐ is strong	☐ sinks in water
☐ is weak	☐ floats on water
☐ is flexible	☐ allows most light to pass through
☐ is stiff	☐ allows some light to pass through
☐ absorbs water	☐ does not allow light to pass through
☐ does not absorb water	

5. Use the items you have chosen to build your toy sail boat.

6. Test to find out if your toy sail boat can float and sail.

7. Complete the rubric and reflection.

Newspaper

Containers

Aluminium Foil

Cloths

Cardboard

Trash Bag

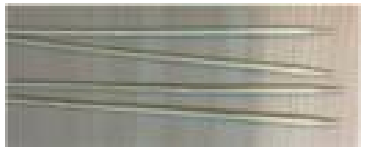
Toilet Roll

Tapes

Bottle

Strings

Straws



Sticks

Cups

Bluetack

Styrofoam board

Kitchen Towel


23
E100S
23
23A


23
E100S
23
23A


23
E100S
23
23A


23
E100S
23
23A

GROUP RUBRIC

Criteria	Level 1 (Just started)	Level 2 (Getting There)	Level 3 (Got it!)
Identify materials to build our boat	We need help to identify the materials used to build the boat.	We are able to identify **some** of the materials used to build the boat.	We are able to identify **all** the materials used to build the boat.
Explain the choices of the materials for each part of our boat	We need help to explain the choices of the materials for any part of our boat.	We are able to explain the choices of the materials for **some parts** of our boat.	We are able to explain the choices of the materials for **each part** of our boat.
Test our boat to see if it is able to move from Point A to Point B.	Our boat did not move and sank.	Our boat made it **part of the way** from Point A to Point B **without sinking**.	Our boat made it **all the way** from Point A to Point B **without sinking**.

REFLECTION:
State two improvements you would want to make to your toy sail boat.

First improvement:

_____

_____

Second improvement:

_____

_____

TEACHER RUBRIC

Criteria	Level 1 (Just started)	Level 2 (Getting There)	Level 3 (Got it!)
Identify materials to build the boat	Students need help to identify the materials used to build the boat.	Students are able to identify **some** of the materials used to build the boat **correctly**.	Students are able to identify **all** the materials used to build the boat **correctly**.
Explain the choices of the materials for each part of the boat	Students need help to explain the choices of the materials for any part of the boat.	Students are able to explain the choices of the materials for **some parts** of the boat **correctly**.	Students are able to explain the choices of the materials for **each part** of the boat **correctly**.

Possible improvement(s) students could make to their toy sail boat.

_____

_____

_____

_____

Student's reflection:

REFLECTION:
State two improvements you would want to make to your toy sail boat.

First improvement:
Make it balance by putting more water.

Second improvement:
Make more cups under the boat.

4

Teacher's comment:

Possible improvement(s) students could make to their toy sail boat.
Interesting design. What is the purpose of putting the two plastic cups under the hull? You may need to put more water inside the cup so that it is submerged in the water. Overall, good try! :)

Student's reflection:

REFLECTION:
State two improvements you would want to make to your toy sail boat.

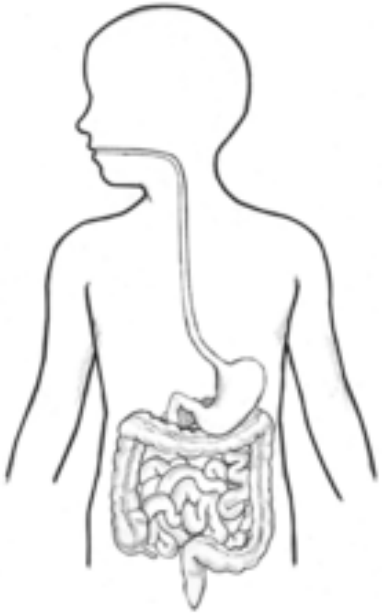
First improvement:
We will try to make it lighter.

Second improvement:
We can make our boat go faster

Teacher's comment:

Possible improvement(s) students could make to their toy sail boat.
Your boat is not heavy at all. You do not need to make it lighter to sail faster. Perhaps, you may want to redesign your sail so that it can catch more wind to move faster. Overall, safe design that works! Good

Formative Assessment Task 2: Digestive System



Reflection

Reflect on the human digestive system.

1. One way to improve the model is to have 1 straw for the gullet.

Reflection

Reflect on the human digestive system.

1. One way to improve the model is to make it nicer like using more things that look like it.

What tips can I use to help my child?

- Be positive about Science!
- Try to avoid saying "I was never good at Science" or "I never liked Science".
- Let your child know that everyone can learn Science and Science is around us.
- Use **household items** to reinforce Science concepts.
- Let your child know that you think Science is important and **fun**.
- Carry out **Science activities** with your child.
- Ask your child **questions** and encourage your child to ask **questions**.
- Encourage him/her to find out more on his/her own.
- Be positive about your own Science knowledge.
- Learn, and discover together.

Features of Inquiry

Question Evidence Explain
Connect Communicate

Your presence and involvement in your child's learning will make a difference.

Thank You

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Please complete the feedback form to help us improve on future sharing.

RESPECT **TEAMWORK**

RESPONSIBILTY **LIFELONG LEARNING**