



**ProDev
Hour**

Join in online every Thur, 8-9pm for:
✓CPD ✓ Empowerment ✓ Union Updates

SPEAKER:

**Mulumba Mutema
Mathias**

CURRICULUM SPECIALIST, NCDC

TOPIC:

**DEVELOPING LESSON
ACTIVITIES FROM
LEARNING OUTCOMES IN
THE CBC**



THUR **22**
MAY 2025



**Tell Me and I Forget; Teach
Me and I May Remember;
Involve Me and I Learn**

Xun Kuang ”

LIST FOUR THINGS THAT DRIVES YOU TO DO WHAT YOU DO

▶ 1

▶ 2

▶ 3

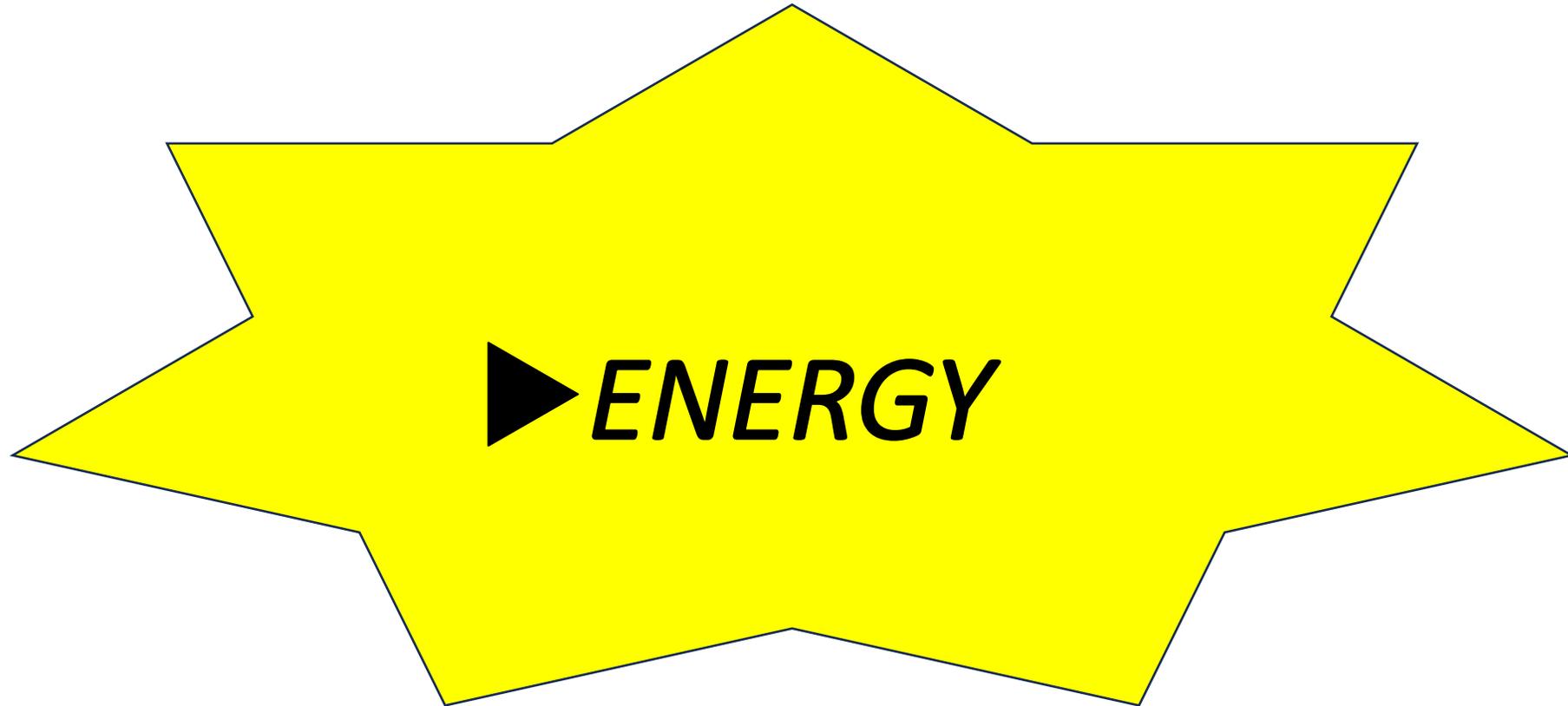
▶ 4

THIS IS WHAT DRIVES YOU TO DO WHAT YOU DO



Raise your hand or unmute and tell us

**What comes to your mind when you
read or hear the word in the bubble**

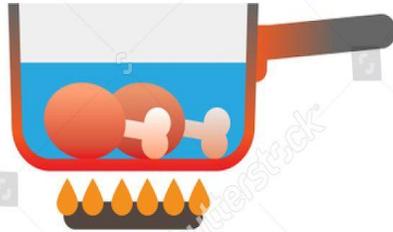


Concept of energy

FORMS of ENERGY



Nuclear Energy
Fusion and Fission



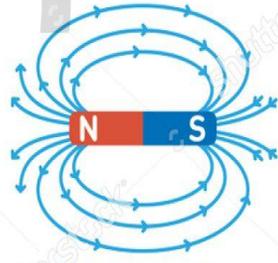
Thermal Energy



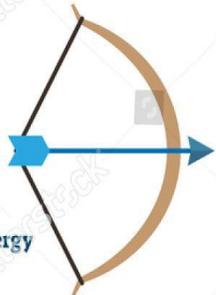
Electric Energy



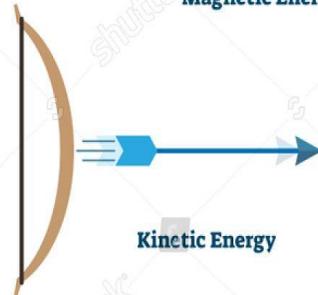
Chemical Energy



Magnetic Energy



Potential Energy



Kinetic Energy

TYPES OF ENERGY



Thermal Energy



Radiant Energy



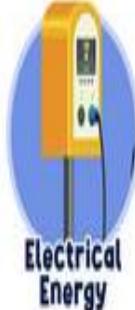
Light Energy



Chemical Energy



Nuclear Energy



Electrical Energy



Gravitational Energy



Mechanical Energy

DIFFERENT FORMS OF ENERGY

Energy comes in different forms, and each can be changed into another form.

HERE ARE SIX DIFFERENT FORMS OF ENERGY

CHEMICAL ENERGY

is the energy stored within bonds between molecules. There are many sources for this energy, such as natural gas, gasoline and coal.



THERMAL ENERGY

(or heat energy) is the energy of moving molecules. The energy that comes from a fire is thermal energy.



MECHANICAL ENERGY

is the energy stored in objects by tension. When the tension is released, motion occurs. A spring that is pressed down has mechanical energy.



RADIANT ENERGY

(or light energy) is related to the movement of light. The Sun provides radiant energy to warm our planet.



ELECTRICAL ENERGY

is energy that comes from tiny charged particles called electrons. In nature, lightning is one form of electrical energy.

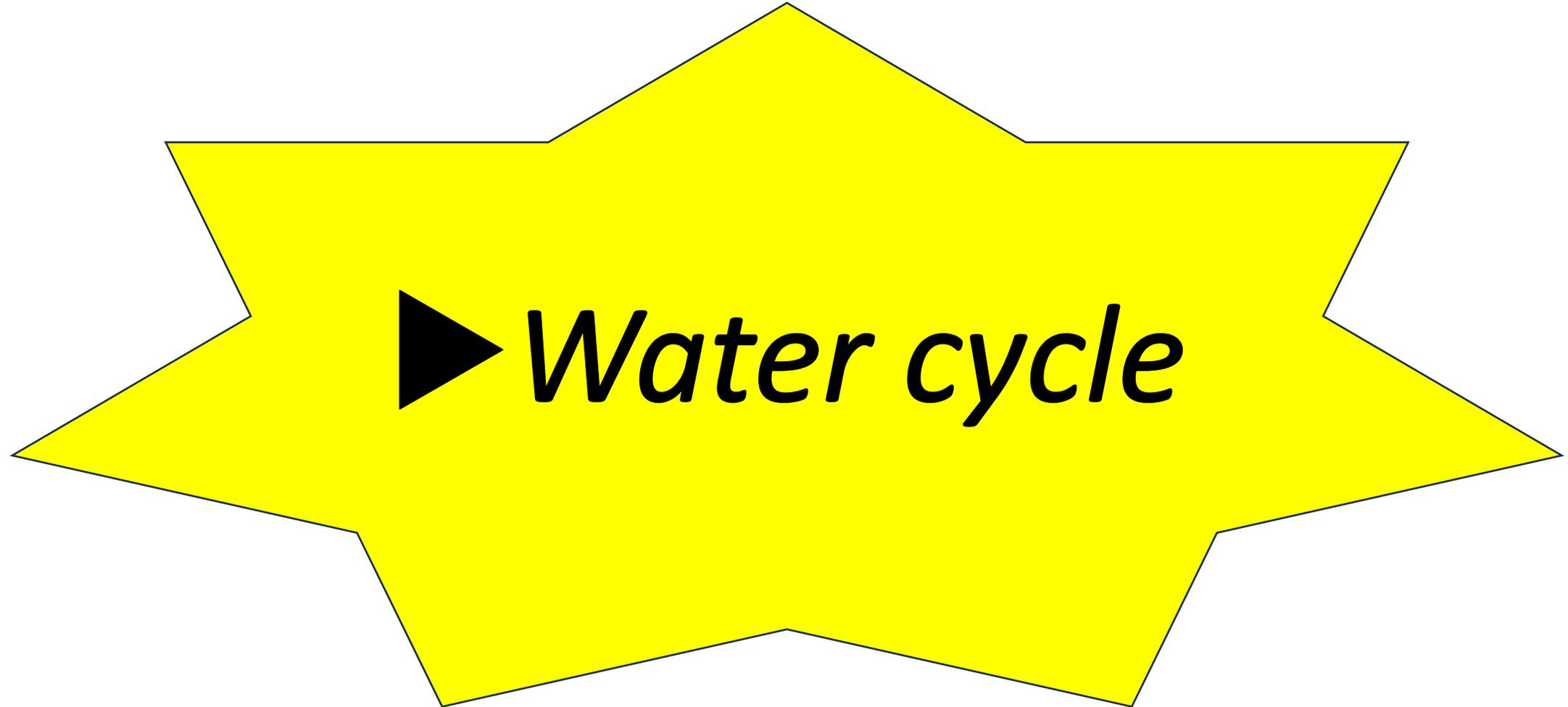


NUCLEAR ENERGY

is the energy created when the nuclei of atoms are split or fused. This type of energy is produced in nuclear power plants.



**Tell us what comes to your mind when
you read or hear the word in the bubble**



KWL EXAMPLE FOR SCIENCE

Upper Elementary School: The Water Cycle

KNOWLEDGE

- Water exists in different forms: liquid, solid, gas
- Rain is a form of water

WANT TO KNOW

- How does rain form?
- What causes evaporation?

WHAT I LEARNED

- Evaporation happens when heat energy from the sun causes water to change into a gas
- Rain forms through a process called condensation

Three thumb rule of teaching and learning

Thoughts

Actions

Products

WHAT ARE THE COMPONENTS OF A COMPETENCY?

Knowledge or concept
and global idea

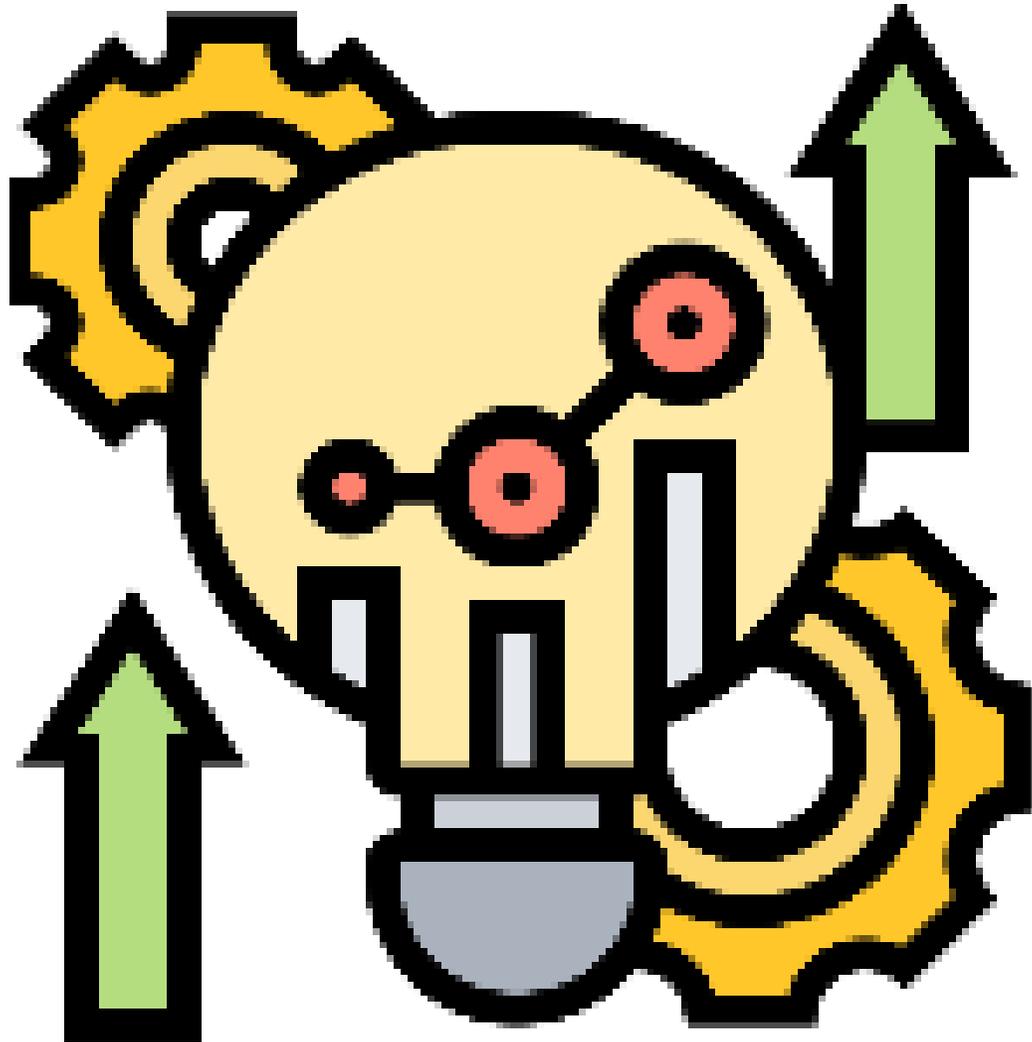
Know-how-to-do
or what skills

Know-how-to-be or
values attitudes beliefs

Understanding the learning outcome

- Examine the relationship between the structure of the mitochondrion and the stages of cellular respiration in living organisms. (u, s)
- Measure a variety of physical quantities in the environment with minimal errors. (v/a, s, gs)
- Evaluate how the Periodic Table is organized based on atomic number and properties, recognizing its historical significance. (u, s)

**WHAT DO MY LEARNERS KNOW ABOUT
RESPIRATION/ PERIODICITY/ MEASUREMENTS**



**WHAT DO MY LEARNERS WANT TO
KNOW
ABOUT RESPIRATION/ PERIODICITY/
MEASUREMENTS**

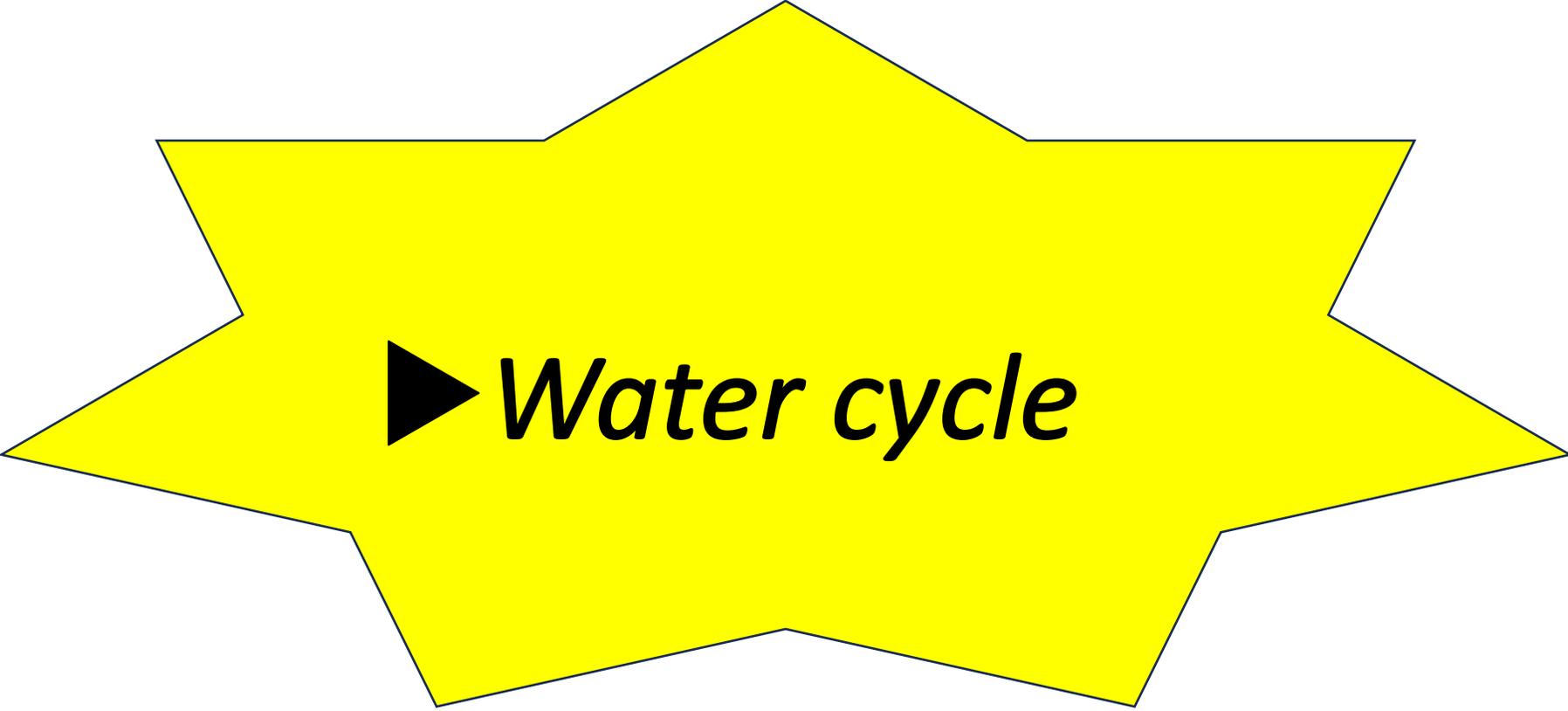




**WHAT THINGS SHOULD MY LEARNERS
ENGAGE IN/WITH TO BE ABLE TO
KNOW; ACQUIRE SKILLS AND VALUES
ABOUT RESPIRATION/ PERIODICITY/
MEASUREMENTS**

Raise your hand or unmute and tell us

**What comes to your mind when you
read or hear the word in the bubble**



▶ *Water cycle*

KWL EXAMPLE FOR SCIENCE

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KNOWLEDGE

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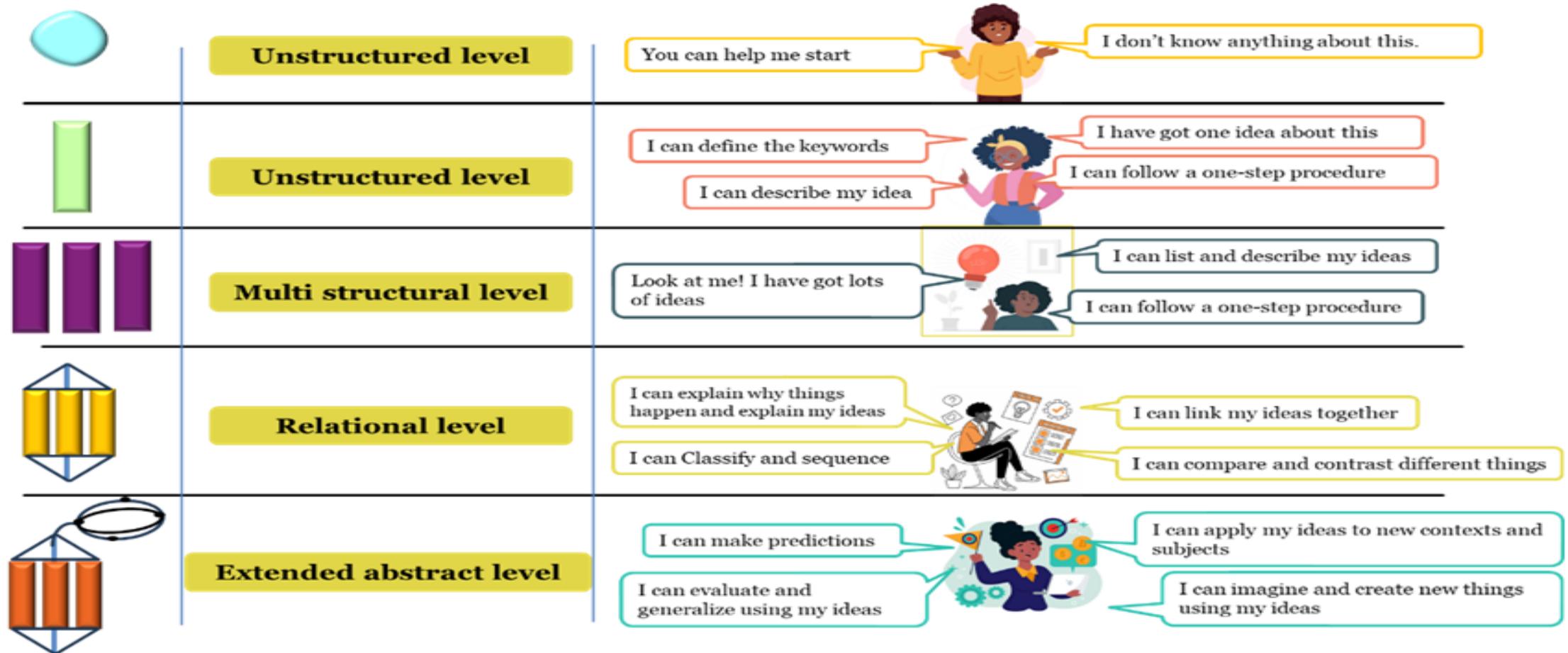
WANT TO KNOW

- How does rain form?
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WHAT I LEARNED

- Evaporation happens when heat energy from the sun causes water to change into a gas
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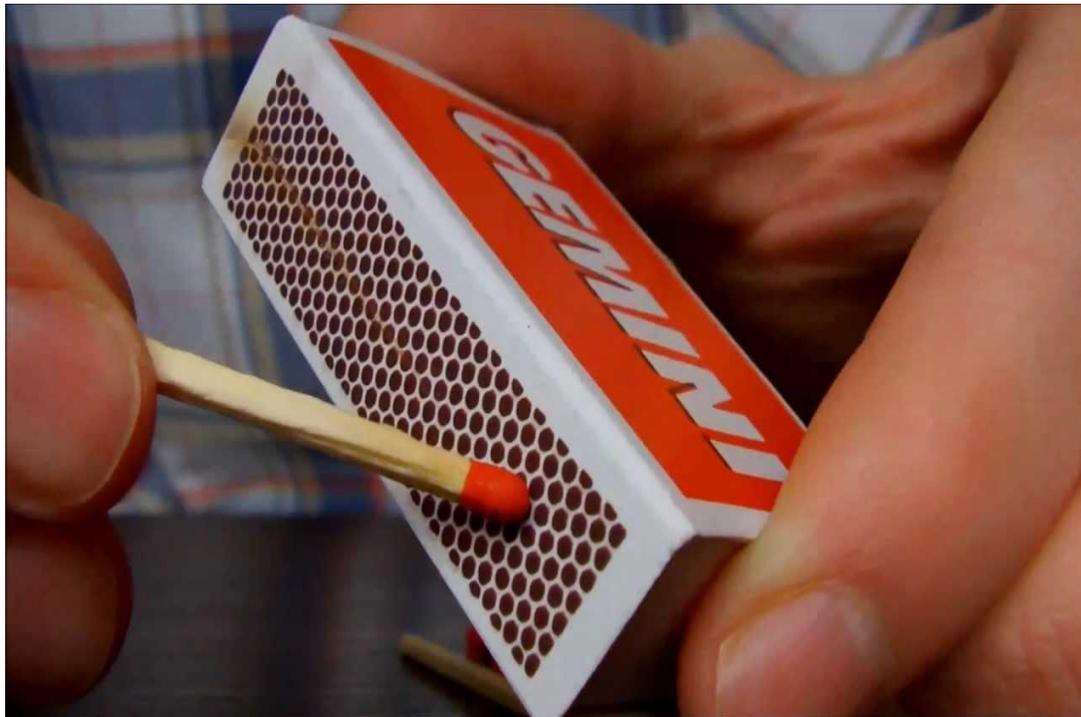
What will I do as a teacher to put the learner on this learning journey



Raise your hand or write in the chat and tell us what you did in the morning today immediately you woke up



MATERIALS COME INTO CONTACT OR TOUCH EACH OTHER: WHAT HAPPEN



Title: Drag forces and friction

06/07/17



Starter: Is it easier to ski on grass or snow?
One of them produces more of a specific force, what is this force?



Sample Learning Activity

- a) What are the facts from the above experiences? What information do you need to find out?
- b) How do you feel about having to rub your hands back and forth across different surfaces. Do it on three different surfaces
- c) In your daily life, list examples where two surfaces rub together? What problems could arise when the two surfaces are regularly rubbed together. Do problems arise in all situations? Why or why not
- d) What do you need to do next time if you want and expect that two surfaces are going to rub together?
- e) What new ideas come to your mind about surfaces in the engine parts that are moving against each other or the tongue in the mouth/if a rope is tied in the neck of a tethered cow/goat

Sample Learning Activity

- Investigate the changes that occur when handling calcium oxide or quicklime with water
- a. You are provided with white calcium oxide or quicklime, and water. Predict what will happen when water is added to the white calcium oxide or quicklime? What makes you say so?
- b. Wear personal protective equipment before handling calcium oxide or quicklime? Which personal protective equipment would you need and why? What is the reason for this practice in science? What are the potential hazards or safety concerns you anticipate when handling calcium oxide or quicklime with water and how can they be mitigated/handled
- c. Measure 5 gm of calcium oxide or quicklime to put in each of the three beakers assembled. Label and record your beakers to follow up on the next steps consistently. Which type of weighing scale would you use and why?

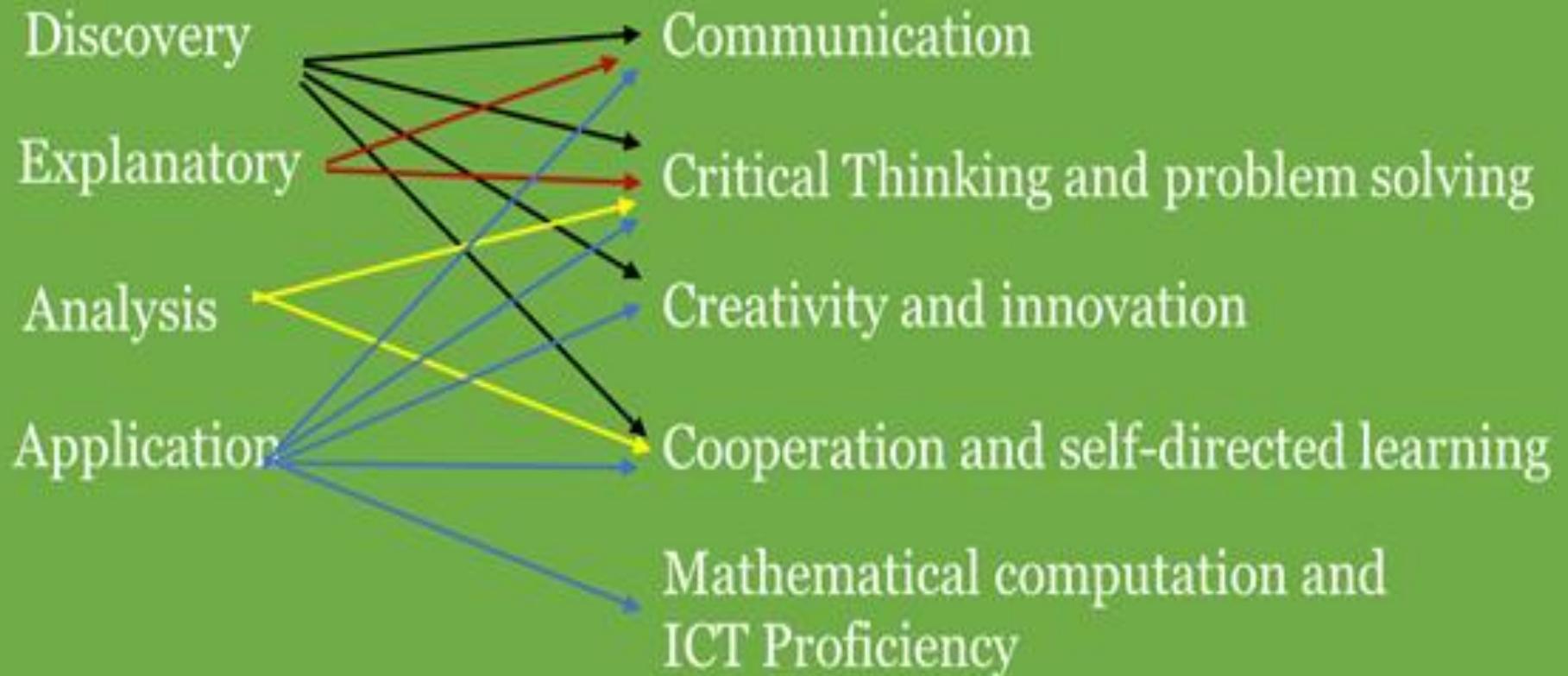
Sample Learning Activity

- d. Using a measuring cylinder, get 25ml of clean water. Then, slowly add this volume to one of your labeled beakers. What happens to the mixture of the two substances? What happens when calcium oxide or quicklime reacts with water, and why does it occur? Touch beaker with your hands. What do you observe? Insert a thermometer in the mixture? Observe what happens to the mercury thread? Note all the changes in temperature, appearance, and any other observation.
- e. What would you do if you wanted to use the thermometer again and why? Now, you can use the second beaker first by inserting another clean thermometer in the white quicklime lime. Record the temperature after 5 minutes from inserting it there. Then, add water and record the temperature of the mixture after 5 minutes.

Sample Learning Activity

- f. Put a strip of red and blue litmus paper in the mixture. How does the reaction between calcium oxide and water affect the pH of the resulting solution?
- g. What is the use and application of the knowledge, skills and abilities from the above activity.
- h. In what industries or applications is this reaction utilized and why? What benefits does this knowledge and reaction provide to humans? What names are given to the person who utilizes this knowledge and reaction to make money?
- i. How does the reaction between calcium oxide or quicklime and water relate to the production of cement or mortar in the construction business
- j. What are some environmental considerations associated with the use of calcium oxide in our community and suggest how they can be managed or handled

Kolb's experiential learning



MATERIALS COME INTO CONTACT TOUCH EACH OTHER: WHAT HAPPEN



- Rubbing our own hands together
- Streamlined bodies of fish and birds are copied in order to guarantee that there is as little friction
- Smoothing wood
- Grinding of surfaces
- Using sand papers
- Shoe soles
- Ball bearings are used to separate two bearing races by using balls as separators between the two races. The result is that sliding friction becomes rolling friction
- Oiling the door hinges will make them easier to open and close.
- Grease and oil is used to keep bicycle parts moving smoothly and petroleum jelly; shoe polish; water our body as move against air particles.

SURFACES RUBBING FAST

- During the manufacture of engine parts, a lot of care is taken. This is to make sure that metal surfaces which have to slide or rotate in contact with each other are finished as smoothly as possible. However, the surfaces are never completely smooth. On close observation of these surfaces, they may look or feel smooth. The surfaces will show roughness when examined under a microscope.
- If two such surfaces are rubbed together, they will get hot. The heat you have is caused by particles touching each other. In fact, if they have enough pressure applied and they are rubbed fast enough together they will eventually become hot enough. They will melt on the surface and weld together. This is similar to when you rub your hands smartly back and forth across a table surface.

Three thumb rule of teaching and learning

- Make money, discover career pathways, and become experts
- Concrete experience, representational experience, and abstract experience
- Which Method (learner-centred), which strategy and which techniques
- What is the rationale can I give that is engaging, meaningful, and relevant
- Which activities can they do, questions do I need to ask, what teachable moment can observe or document as I drive them to a **product/an outcome**

Raise your hand or unmute and tell us

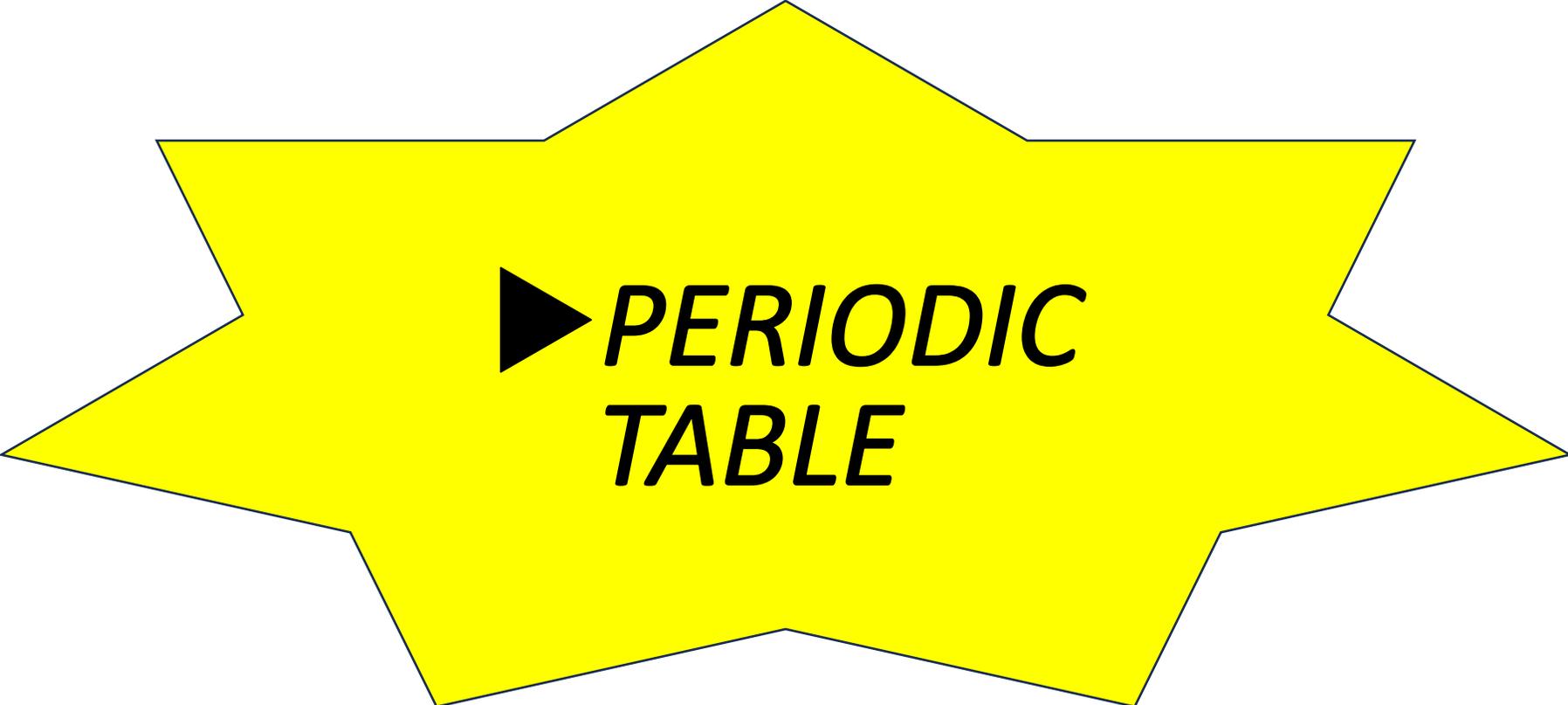
**What comes to your mind when you
read or hear the word in the bubble**



▶ *RESPIRATION*

Raise your hand or unmute and tell us

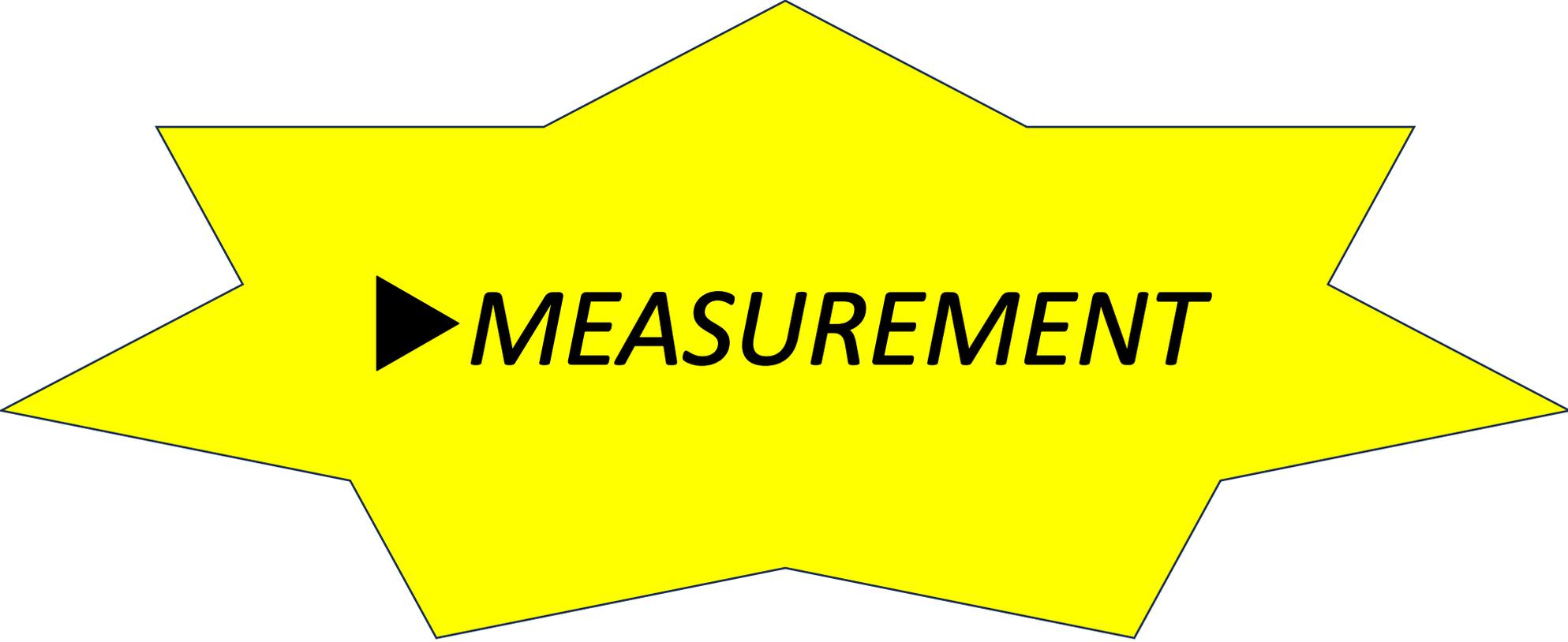
**What comes to your mind when you
read or hear the word in the bubble**



***▶ PERIODIC
TABLE***

Raise your hand or unmute and tell us

**What comes to your mind when you
read or hear the word in the bubble**



▶ *MEASUREMENT*

Tourists in Fort portal city in May 2025

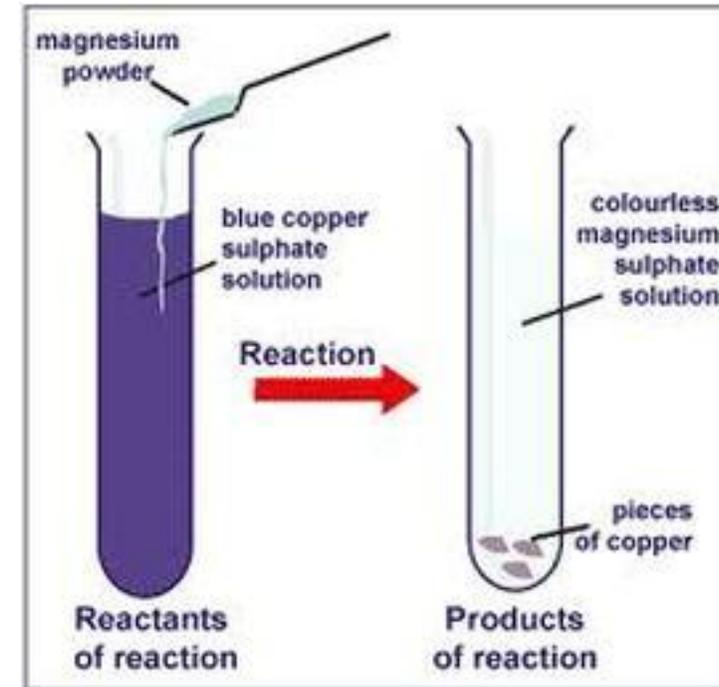
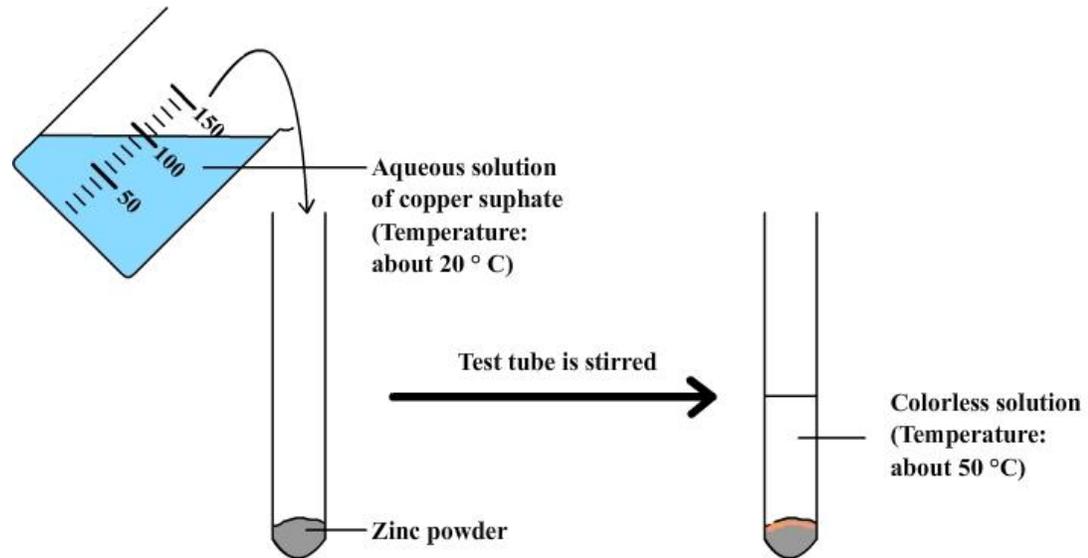
- Which knowledge are you going to employ to support the tourist in the condition you are not happy about. Which materials will you need and why?
- What will you offer to this tourist who was in Fort portal in May 2025 to have a comfortable experience
- *What would you like to tell this person/ tourist riding in the rain if you happen to meet?*



MATERIALS ARE GOOD FOR US

- You are provided with 25mls of zinc sulphate solution or aqueous copper sulphate; 100gm of magnesium or zinc powder; 25mls or 50mls of sodium hydrogen carbonate; beakers(250mls); citric acid crystals; stirring rod; stop clock; 100gms ammonium nitrate; water; laboratory hand gloves; thermometer; spatula and test tubes
- Add magnesium powder to the beaker with zinc sulphate. What is your experience?
- Put the given volume of sodium hydrogen carbonate in a beaker. Write that volume somewhere to remind you. Record the initial temperature of the sodium hydrogen carbonate.
- Add a spatula of citric acid crystals and stir. What have you used to stir and why? What do you observe in the reaction? Record the minimum temperature after 60 seconds; 90 seconds; 120 seconds; 180 seconds; 240 seconds and 300 seconds. what happens to the materials and the final product? What explanation can you give for this?
- In another beaker dissolve ammonium nitrate in water. What do you observe? Touch the outside of the beaker. What do you feel?
- Which energy changes are here? Where in real life can you use this experience to make money?

MATERIALS ARE GOOD FOR US



Raise your hand or write in the chat the things you would do so that a learner can have knowledge, can be able to do something in , can exhibit values on the concept of electricity at these different ages

Age 3- 11 years

Age 12- 24 years

Age 25 years and above

Raise your hand or unmute and tell us which of these questions and why you need to respond to it as a teacher in Advanced level

- 1. Why am I teaching respiration/periodicity/measurement
- 2. What do my learners need to learn respiration/periodicity/measurement
- 3. How can my learners learn respiration/periodicity/measurement
- 4. Why should my learners learn respiration/periodicity/measurement
- 5. How do I facilitate or support my learners to learn respiration/periodicity/measurement



What do my students need to learn?

How can they learn it?

Why should they learn?

How do I facilitate them to learn?

Why am I teaching?

Miriam Makeba


TikTok
@ lyrics_citadel

Lyrics_Citadel

PATA PATA
MIRIAM MAKEBA

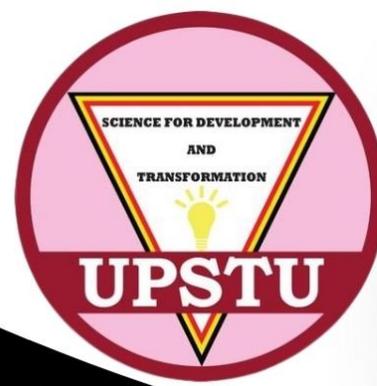
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Pata pata by Miriam Makeba

THANK YOU!

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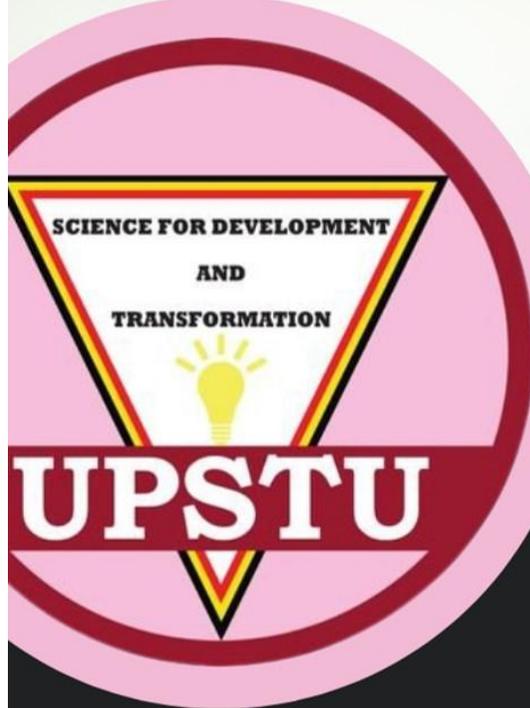
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- Rights, Safety, Policies & Dialogue
- Innovation & Skill Development
- Social & Economic Empowerment
- Updates on Union Programs and Activities