7

DepED
DEPARTMENT OF EDUCATION

Lesson Exemplar for Science

Quarter 1
Week
1

DepED MATATAG
BAGONG PILIPINAS
ONE NCR STRONGER TOGETHER

Learning Activity Sheet for Science Grade 7
Quarter 1: Week 1

This material is intended exclusively for the use of teachers in the implementation of the MATATAG K to 10 Curriculum. It aims to assist in delivering the curriculum content, standards, and lesson competencies.

Every care has been taken to ensure the accuracy of the information provided in this material. For inquiries or feedback, please call the Department of Education - Regional Office via telephone number (02) 85229412 or send an email to ncr@deped.gov.ph.

Published by the Department of Education
Secretary: Sara Z. Duterte
Undersecretary: Gina O. Gonong

Development Team

Writer:	Roxanne S. Villanueva
Content Validators:	
Internal:	Merie Gerlie V. Capiral, Corazon A. Javier, Jocelyn R. Agulto, Armida Oblinada, Maripaz Mendoza, Gemma Caviles Rowena C. Lamera
External:	Ryan Lansangan, Louie Dasas
Language Validator	Donald H. Samson
Illustrator:	Aileen G. Gutierrez
Layout Artist:	Danica Joy B. Delorino

Management Team

JOCELYN DR ANDAYA *CESO IV*, Director IV
CRISTITO A. ECO *CESO III*, Assistant Regional Director
MICAH G. PACHECO, OIC-Chief Education Program Supervisor, CLMD
DENNIS M. MENDOZA, Regional EPS/ LRMS Head
MYRON WILLIE III B. ROQUE, SDO Valenzuela LRMS Education Program Supervisor

MATATAG K to 10 Curriculum Weekly Lesson Log	School		Grade Level	7
	Name of Teacher		Learning Area	SCIENCE
	Teaching Dates and Time		Quarter	1 Week 1 Day 1-4

	DAY 1	DAY 2	DAY 3	DAY 4
I. CURRICULUM CONTENT, STANDARDS, AND LESSON COMPETENCIES				
A. *Content Standards*	The learners learn that the particle model explains the properties of solids, liquids, and gases and the processes involved in changes of state.			
B. *Performance Standards*	By the end of the Quarter, learners recognize that scientists use models to describe the particle model of matter. They use diagrams and illustrations to explain the motion and arrangement of particles during changes of state. They demonstrate an understanding of the role of solute and solvent in solutions and the factors that affect solubility. They demonstrate skills to plan and conduct a scientific investigation making accurate measurements and using standard units.			
C. *Learning Competencies*	The learners should be able to recognize that scientists use models to explain phenomena that cannot be easily seen or detected.	The learners should be able to recognize that scientists use models to explain phenomena that cannot be easily seen or detected, in particular, what makes up matter.	The learners describe the particle model of matter as "All matter is made up of tiny particles."	The learners describe the particle model of matter as "All matter is made up of tiny particles with each pure substance having its own kind of particles."
D. *Learning Objectives*	At the end of the lesson, the learners should be able to: a. identify the different models used by the scientists to explain	At the end of the lesson, the learners should be able to: a. describe the models used by the scientists to explain what makes up the	At the end of the lesson, the learners should be able to: a. describe the particle model of matter; b. recognize that matter consists	At the end of the lesson, the learners should be able to: a. describe what pure substances are; and b. use the particle model to

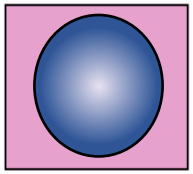
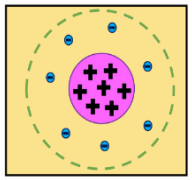
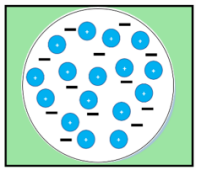
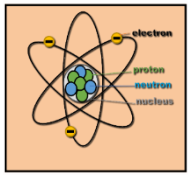
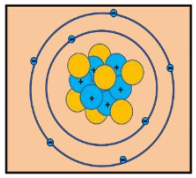
Misamis St., Bago Bantay, Quezon City
(02) 85229412
ncr@deped.gov.ph
https://www.depedncr.com.ph

	phenomena that cannot be easily seen or detected. b. describe the different models used by the scientists to explain phenomena that cannot be easily seen or detected.	things around us. b. explain how the different models are used by scientists to describe what makes up matter.	of tiny particles, and c. use the particle model of matter to explain the particulate nature of matter.	illustrate the particles of an element or a compound
E. Instructional Design Framework	Ideational Context Engage	Ideational Collaboration Context Connection Explore	Ideational Collaboration Creativity Innovative Experience	Ideational Collaboration Integrative Connection Empathize
F. 21st Century Skills	Learning Skills: Collaboration and Communication Literacy: Information Life Skills: Social	Learning Skills: Collaboration and Communication Literacy: Information Life Skills: Social	Learning Skills: Collaboration and Communication Literacy: Information Life Skills: Social	Learning Skills: Collaboration and Communication Literacy: Information Life Skills: Social
II. CONTENT	Nature of Science and the kinds of models used in science	Use of Models – describing matter	Use of Models- Particles of Solid, Liquid, and Gas	Use of Models- Elements and Compounds
III. LEARNING RESOURCES				
A. References	Monkman, M., & Gissendanner, J. (2015). Using visual representations to enhance science learning: A review of the	Wiener, J. (2020). Science teachers' conceptions of atomic models. *European Journal of Mathematics and Science Education*	Khan Academy (n.d.). States of matter [Video]. Retrieved from https://www.khanacademy.org/science/chemistry/states-of-matter-	OER Commons. (n.d.). Elements, compounds, and mixtures [Website with downloadable file]. Retrieved from https://oercommons.or

Misamis St., Bago Bantay, Quezon City
(02) 85229412
ncr@deped.gov.ph
https://www.depedncr.com.ph

	literature. *Journal of STEM Education,* 16(1), 1-10. https://doi.org/10.1186/ s40594-015-0024-x	1, 67-80. http://dx.doi.org/10.12973/ ejmse.1.2.67	and-intermolecular-forces/states-of-matter/v/states-of-matter	g/ authoring/11946-elements-compounds-mixtures/view
B. *Other Learning Resources*	Admin (2018) Scientific modeling. Available at: https://www.sciencelearn.org.nz/resources/575-scientific-modelling (Accessed: 28 April 2024) AngelaAlderfer Ahcs (2020, October 14). *Scientific Models,* https://youtu.be/ nGauq 57P5Bg?si=CSoMe6_1okBjsjam	Admin (2018) Scientific modelling. Available at: https://www.sciencelearn.org.nz/resources/575-scientific-modelling (Accessed: 28 April 2024)	CK-12 Foundation. (n.d.). CK-12 Middle School Physical Science FlexBook 2.0 [Online textbook]. Retrieved from [https://flexbooks.ck12.org/ cbook/ck-12-middle-school-physical-science-flexbook-2.0/r164/]	Royal Society of Chemistry Education. (n.d.) *Introducing particle models (11-14 years).* Retrieved from https://pubs.rsc.org/en/content /articlepdf/2015/ee/c5ee01434d (Accessed June 12, 2024).
IV. TEACHING AND LEARNING PROCEDURES				
Before/Pre-Lesson Proper				
Activating Prior Knowledge	**APK 1:** Read the following words and phrases. Categorize the words as **"SCIENCE"** and **"NOT SCIENCE"** Experimental Superstitious Unchanging Hands-on	**CLASSIFY ME!** Based on the previous lesson about the different models used by the scientists, the learners will categorize the following into (1) physical, (2) mathematical, or (3) conceptual model:	**KAHOOT IS A HOOT!** In teams participating in a Kahoot! game, the learners will answer the following questions: **A. Name the atomic model shown in the following figures:**	**2 TRUTHS AND A LIE** To review the previous lesson, have the learners play a game of 2 Truths and a Lie. In this game, you will present three statements and the learners will try to guess which ones are

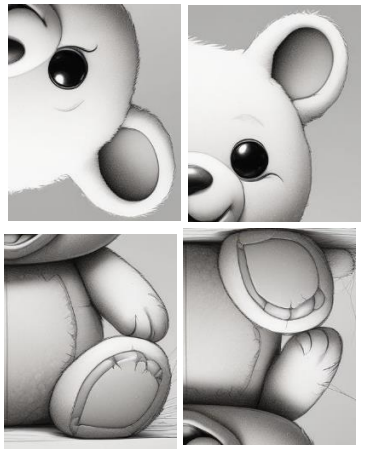
Misamis St., Bago Bantay, Quezon City
(02) 85229412
ncr@deped.gov.ph
https://www.depedncr.com.ph

	Evidenced-based Problem-solving Ignoring evidence Open-minded Fair testing Teamwork Logical Measurable Evolving Based on opinion Jumping to conclusion Always the same answer Explaining phenomena Predicting Kept as a secret knowledge **ANSWER KEY:** **SCIENCE:** Experimental Hands-on Evidence-based Problem-solving Open-minded Fair testing Teamwork Logical Measurable Evolving Explaining phenomena Predicting **NON-SCIENCE** Superstitious	1. 3D models of molecules 2. Reconstructed skeletons of dinosaurs 3. Weather forecasts 4. Motion graph of a toy car 5. Digestion process model 6. Water cycle model 7. Equations to solve for the speed of an object **ANSWER KEY:** 1. Physical model 2. Physical model 3. Mathematical model 4. Mathematical model 5. Conceptual model 6. Conceptual model 7. Mathematical model The teacher will then ask what models are	1.  2.  3.  4.  5.  ***Answer key:*** 1. Dalton's atomic model 2. Rutherford's nuclear model	true and which one is the lie. SET 1: a. All matter is made up of tiny particles. (T) b. Only gases are made up of tiny particles because they are invisible. (L) c. The particles in a solid are packed closed together. (T) SET 2: a. Gases are made up of tiny particles that are spread far apart. (T) b. The particles in solid are closer together than the particles in a liquid. (T) c. You cannot use the particle model to explain the particles in a solid because unlike gases, solids are visible

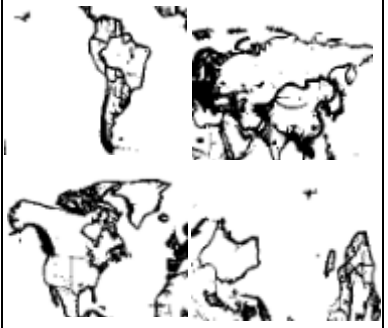
Misamis St., Bago Bantay, Quezon City
(02) 85229412
ncr@deped.gov.ph
https://www.depedncr.com.ph

	Unchanging Ignoring evidence Based on opinion Jumping to conclusion Always the same answer Kept as a secret knowledge Ask the learners if there are words that are not familiar and what they think they could mean. Keep in mind what misconceptions they may harbor and have them realize what the nature of science is by citing examples on how scientists "do" science. **APK 2:** Have the learners guess what each picture shows. The learners will arrange each picture puzzle. After arranging the puzzle, the learners will answer the guide questions below.	for, recalling the use of models in the previous discussion. The teacher asks, what other examples of scientific ideas and phenomena do we use models for? Possible answers: what makes up matter, composition of stars, the path of a typhoon, etc. The teacher will ask: What do these have in common?	3. Thomson's Plum Pudding model 4. Quantum mechanical model 5. Bohr's planetary model Have the learners realize that as the models are refined, one thing remains the same, and that is matter is made up of particles. Ask the learners if the models of what makes up matter are clear to them and if there are other clarifications that need to be made. **B. Have the learners participate in the second part of the Kahoot! game where they recall their knowledge of solids, liquids, and gases by classifying the following materials:** 1. Basketball 2. Oxygen gas	to the naked eye. (L) SET 3: a. The particle model explains why most solids can be compressed. (L) b. The particle model explains why the scent can spread through the room. (T) c. The particle model explains why liquids take the shape of their container. (T)

Misamis St., Bago Bantay, Quezon City
(02) 85229412
ncr@deped.gov.ph
https://www.depedncr.com.ph

	Picture 1  ***Answer: globe*** **Picture 2**  ***Answer: stuffed toy***		3. Water 4. Steam 5. Ice After the game, have the learners describe each state of matter – solid, liquid, and gas.	

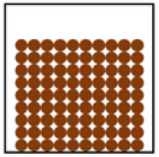
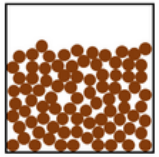
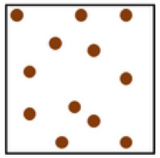
Misamis St., Bago Bantay, Quezon City
(02) 85229412
ncr@deped.gov.ph
https://www.depedncr.com.ph

	Picture 3  ***Answer: Map*** *Once the learners have figured out what these photos are, ask them the following questions?* 1. What do these pictures have in common? 2. What do we use them for? 3. Which one do we use if we want to find where a country is? 4. Which should we use to identify the parts of a mammal? 5. What do these objects represent and what do we use them for?			

Misamis St., Bago Bantay, Quezon City
(02) 85229412
ncr@deped.gov.ph
https://www.depedncr.com.ph

	Have the learners state what has been highlighted in the two tasks – the nature of science and the use of models in "doing" science.			
Lesson Purpose/Intention	With their prior knowledge activated, ask the learners to complete the lesson purpose for this session: The lesson is all about the _____used by the _____to _____phenomena that cannot be easily seen or detected. ***Answer key:*** *models, scientists, explain*	Let the learners recognize that one key understanding in science is in understanding what makes up matter. Allow them to complete the lesson intention for the day: _____ use _____ to describe _____ matter. ***Answer key:*** *Scientists, models, what makes up*	Ask the learners: if you were to explain to a five-year-old what solids, liquids, and gases are, what kind of model should you use? Let the learners state what the lesson purpose for the day is.	Ask the learners what they remember about pure substances from Grade 6 science. Ask them: What if we apply the particle model to representing pure substances? Allow the learners to state in their own words what they think the lesson purpose is based on what has been mentioned.
Lesson Language Practice	The learners will be given an article to read, and they will be asked to mark any unfamiliar terms, phrases, or sentences as well as describe any that may be confusing.	The learners will be asked to read aloud the situation on which the next activity is based: Situation:	Group the learners in five groups and provide each group with the following photos:	**ACTIVITY 1: SORTING HAT CHALLENGE LEVEL 1** Without giving any hints, let the learners work in their groups as they sort into just two

Misamis St., Bago Bantay, Quezon City
(02) 85229412
ncr@deped.gov.ph
https://www.depednc.com.ph

	(See attached LAS 1) Activity 1: Close Reading of an Article on the Use of Models The learners will perform a close reading activity as they silently go over the material for five minutes, encircle the words that are not familiar to them, and underline terms they think are important. **Science Superpowers: Using Models to Unlock the Mysteries of the World** Ever built a model airplane or a volcano out of baking soda? Those are actually miniature versions of real things, and scientists use them too! But these models aren't just for fun (although they can be!), they're like special tools that help us understand the world around us. Imagine you want to study the solar system, but blasting off into space can be a bit tricky. So, scientists build models of the planets and stars, sometimes using computers or even just by putting balls on strings! These models help them visualize how the planets move and interact with each other. Models can also be used for things we can't see with our naked eyes, like atoms (the super tiny building blocks of everything!) Scientists create pictures or simulations of atoms to understand how they work together to form different materials. Here's the coolest part: models can even help us predict the future! By studying weather patterns in a model, scientists can make educated guesses about upcoming storms or sunny days. The next time you build a model rocket or a dinosaur out of clay, remember – you're using a scientific superpower! Models might be miniature, but they can unlock giant mysteries about the amazing world we live in! Then, the teacher will facilitate a short	*You and your friends are on a **time machine** that takes you back to the different **models** scientists used to explain the **structure** of matter.* *Your job is to learn from each station the model, the scientist/s who **developed** it, what the model looks like, and the year it was developed.* *Complete the Time Machine Passbook which **summarizes** the different models presented in each station. Try to see how the models **evolve** as our ways of understanding matter also improve.* The teacher will ask the learners to identify the terms in bold letters and let them interpret what they mean based on the context clues.	   Within their groups, ask the learners to discuss and answer the following questions: 1. Based on our discussion, what do you think these models represent? Why do you think so? ***Sample answer:*** *The models represent what makes up matter in the three different states.*	hats the following common household items based on what they think makes sense: Gold bar Sugar Water Salt Iron nail Baking soda Nitrogen gas Calcium Silver wire Have the learners explain their basis for sorting the items. Park their responses and return to these by the end of the lesson.

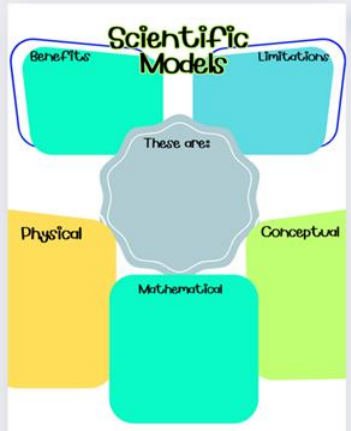
Misamis St., Bago Bantay, Quezon City
(02) 85229412
ncr@deped.gov.ph
https://www.depedncr.com.ph

	discussion on unfamiliar terms, phrases, or sentences identified in an operational manner.	The teacher then asks if there are other words that need clarification.	2. In what ways are the models similar? Different? ***Sample answer:*** *They use the same visual elements like circles and squares, but they differ in how the circles are placed next to each other.* 3. Which do you think corresponds to solid, liquid, and gas? ***Sample answer.*** *The first one represents a solid because the circles representing particles are tightly packed, the second one represents a liquid, and the last one represents a gas.* Facilitate the discussion on how the models represent the particle nature of matter. Introduce the idea that all matter is made up of tiny particles.	

Misamis St., Bago Bantay, Quezon City
(02) 85229412
ncr@deped.gov.ph
https://www.depedncr.com.ph

During/Lesson Proper				
Reading the Key Idea/ Stem	**ACTIVITY 2: MODELS IN SCIENCE** The teacher will prepare a video on the different kinds of models used in science, their descriptions, benefits, and limitations to be watched by the learners. VIDEO LINK: Scientific Models https://www.youtube.com/watch?v=nGauq57P5Bg&t=66s As they watch the video, the learners will work as a group in completing the graphic organizer in LAS Activity 2. The teacher will direct the learners to consider the graphic organizer that will guide them in watching the video.	**ACTIVITY 1: MODEL BINGO!** The learners will be grouped into five groups. Each group will go through each station for three minutes and complete the missing information on the different models in their bingo model card.	**ACTIVITY 1: DIFFUSION IN A BAG** In their groups, ask the learners to prepare the following: Manila paper 2 zip lock bags (or plastic bags) Masking tape Have the learners perform **Activity 1: Diffusion in a Bag** in the LAS for 10 minutes. After 10 minutes, ask each group to present their output to the rest of the class. Facilitate the discussion to arrive at the following key points: 1. What do you think the activity demonstrates? 2. Why do you think the scent spread from Bag A to Bag B	**ACTIVITY 2A: SORTING HAT CHALLENGE LEVEL 2** Working groups, learners will need to guess whether each object represents an element or a compound. They will also explain their reasoning based on the object's properties or the clues provided. Learners may fill out Activity No. 2: Mystery Model Mania in the LAS, or alternately, they may use a board or chart on the black board. Materials: 1. Large box or a container 2. Various everyday objects representing pure substances (5-10 objects, e.g. sugar, iron nail, salt, baking soda box, single LEGO brick, two LEGO

Misamis St., Bago Bantay, Quezon City
(02) 85229412
ncr@deped.gov.ph
https://www.depedncr.com.ph

	 ***Pre-Watching Questions:*** The teacher will pose the following questions to the learners: 1. Can you name some of the models used in science that you are familiar with? 2. What benefits can we get from using these models? The teacher will take note of the answers and then play the video.		even though they were not opened? 3. In light of the discussion regarding the use of models, can you describe what happened in the activity using a model?	bricks joined together, etc.) 3. Index cards with clues describing each object's properties (optional) 4. Manila paper for the chart Preparation: 1. Place all the objects representing pure substances inside the box or container. 2. Prepare clues for each object (optional). Clues may be descriptions of the physical properties or some common uses. 3. Set up a recording system on the board of chart paper to categorize the objects based on student guesses (two columns named "Element" and "Compound")

Misamis St., Bago Bantay, Quezon City
(02) 85229412
ncr@deped.gov.ph
https://www.depedncr.com.ph

				Instructions: 1. **Introduce the Activity.** Briefly repeat the concept of matter and how scientists use models to represent things that they can't always see directly. 2. **Mystery Box Reveal.** Tell the learners that the box is filled with objects that represent pure substances, which are either elements or compounds. 3. **Guessing Game.** For each object, the learners need to guess whether it represents an element or a compound. Encourage them to explain reasoning based on the object's properties or the clues provided. 4. **Categorization:** Record the learners' guesses on the board/manila paper

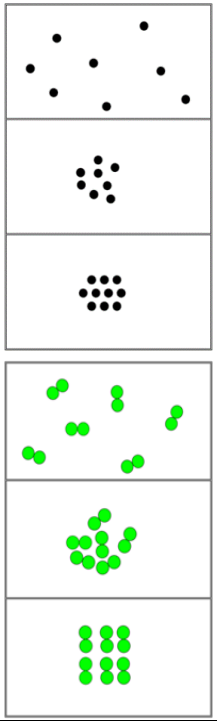
Misamis St., Bago Bantay, Quezon City
(02) 85229412
ncr@deped.gov.ph
https://www.depedncr.com.ph

				under the corresponding category. Debrief after each guess, explaining why an object is classified as an element or compound. 5. **Reveal and Discussion.** After all the objects are revealed, have the learners discuss the differences between the "elements" set and the" compounds" set. Recall the particle model of matter and have the learners explain what pure substances are based on the particle model of matter. Extend the discussion to include elements and compounds, again using the particle model of matter as the basis for the learners' explanation.

Misamis St., Bago Bantay, Quezon City
(02) 85229412
ncr@deped.gov.ph
https://www.depedncr.com.ph

Developing Understanding of the Key Idea/ Stem	Afterward, the learners will be given 10 minutes to discuss what they have watched and to complete the graphic organizer provided. After 5 minutes, the teacher will call on each group to share their answers on each part of the organizer (for example Group 1, on the first part). Invite the other groups to comment on the answers shared by each group by citing as a reference what they have written on their own graphic organizers. Once they have completed LAS Activity No. 2, the learners participate in a discussion facilitated by the teacher. The teacher will ask the learners the following questions to develop understanding:	Each group will be tasked to present the information they were able to get from the activity on the following: Group 1 – Dalton's Atomic Model Group 2 – Thomson's Plum Pudding Model Group 3 – Rutherford's Nuclear Model Group 4 – Bohr Model Group 5 – Quantum Mechanical Model	After presentation and processing of the group outputs, facilitate the discussion to arrive at the following key points: 1. What do the bags and the dots of scented markers (or coffee beans) inside the bag represent? ***Sample Answer:*** *The bags represent matter, and the dots of scented markers (or coffee beans) represent particles as described in the particle theory of matter.* 2. How does the particle model explain what happened to particles in Bag A and Bag B? ***Sample Answer:*** *Even though the bags were not opened, the scent travelled from Bag A to Bag B, which shows that tiny*	**ACTIVITY 2B: SORTING HAT CHALLENGE LEVEL 2 (PARTICLE CARDS)** Keeping in mind these definitions and the Particle Model of Matter, introduce the activity. **Situation:** Imagine you and your friends discovered an ancient text that attempted to group objects based on what they could be made up of. The text presents these "Particle Cards", but the problem is that the cards are not arranged in any manner. Your task as a group is to help sort these cards. Each group is given a pack of "Particle Cards." The groups will be asked to sort the cards into two heaps: Elements and Compounds

Misamis St., Bago Bantay, Quezon City
(02) 85229412
ncr@deped.gov.ph
https://www.depedncr.com.ph

	1. What examples of models have we seen from the video? 2. Can you cite other examples for the following: a. Physical model b. Mathematical model c. Conceptual model 3. Based on the discussion, why do you think scientists use models?		*particles move throughout the available space, which supports the idea that matter is made up of very small particles.* 3. State what the particle model of matter is and how it represents the particulate nature of matter. ***Sample Answer:*** *As seen in the activity, matter is made up of tiny particles.*	Learners will be asked to explain the reason behind their sorting. Sample Particle Cards: 
Deepening Understanding of the Key Idea/ Stem	The learners are then given time to refine the graphic organizers that they have worked on as a group. The teacher will then present the following scenarios and ask the	The learners will be asked to read out and answer the following questions: *Q1. Describe how each model differs from one another.*	**ACTIVITY 2: MARSHMALLOW MATTER** Have the learners perform as a group Activity No. 2:	Ask the learners to share their outputs with the rest of the class. Facilitate the discussion by asking the following questions:

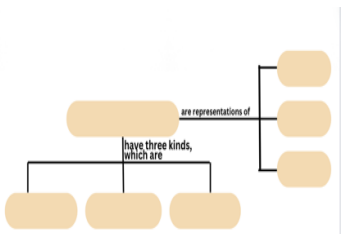
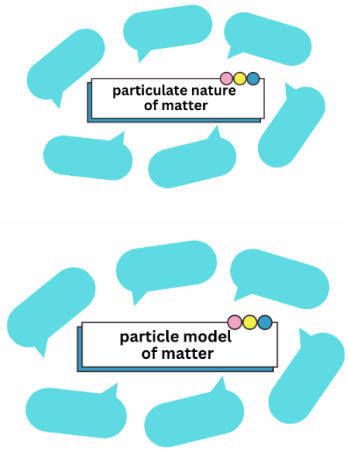
Misamis St., Bago Bantay, Quezon City
(02) 85229412
ncr@deped.gov.ph
https://www.depedncr.com.ph

	learners what they think is the most suitable type of model to be used: 1. Your classmate would like to show how the blood flows through the organ. 2. You have been tasked to design a bridge that can withstand a certain weight. 3. During the pandemic, scientists would like to describe how COVID-19 spreads by taking into account the infection rates, recovery times, and population movement.	***Sample answer:*** *As more particles were discovered, there were more parts presented in the model. For example, from Dalton to Thomson, the electrons were added.* *Q2. Scientists use different models to explain certain phenomena that cannot be easily seen or detected. Based on the discussion or explanation of each model, do the scientists agree or disagree with their viewpoints?* ***Sample Answer:*** *They did not altogether agree throughout the timeline, but as particles were discovered, these particles were incorporated, and the model was refined, the models were changing and were not deemed absolute. This is an*	Marshmallow Matter in the worksheet. In this activity, challenge the learners to build models using mini-marshmallows and toothpicks that represent the different states of matter for ten minutes. The groups will then present their outputs have each group peer-evaluate each presentation by rating them based on the following: 1. How well the models represent how the particles are arranged 2. How well the models are explained and presented by the group 3. How well the models look and their overall presentation.	1. What do the circles represent? ***Sample answer:*** *The circles in the particle cards represent particles that make up matter.* 2. Using the particle model of matter, explain the difference between elements and compounds. ***Sample answer:*** *Based on the activity, elements are made up of one type of particle one circle), while compounds are made up of particles having two or more elements combined.* 3. Collectively, elements and compounds are known as pure substances. Using the particle model, describe what pure substances are.

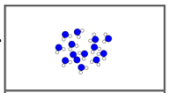
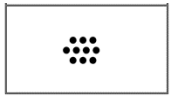
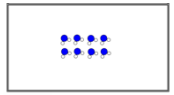
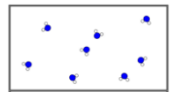
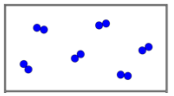
Misamis St., Bago Bantay, Quezon City
(02) 85229412
ncr@deped.gov.ph
https://www.depedncr.com.ph

		example of how scientists agree based on evidence but must refine their thinking once confronted with new evidence. *Q3. Explain how these models contribute to the understanding of the atomic theory.* ***Sample answer:*** *The models help explain a complex concept regarding matter. They also help scientists understand matter better by determining the models' limitations so these could be refined.*		***Sample answer:*** *Based on the activity and how we represented elements and compounds, the particle model tells us that pure substances are materials that consist of only one type of particle which can be elements or compounds.* 4. Suppose you mix two pure substances together, how will this "mixture" look like in a particle card? ***Sample answer:*** *It could be represented by two or more circles with different colors, representing two different pure substances combined.*
After/Post-Lesson Proper				
Making Generalizations and Abstractions	Ask the learners to complete LAS Activity 3: The 3 Kinds of Models	Ask the learners to complete Activity 2 in	Wrap up the lesson by having the learners complete the speech	Wrap up the lesson by having learners write on a piece of paper:

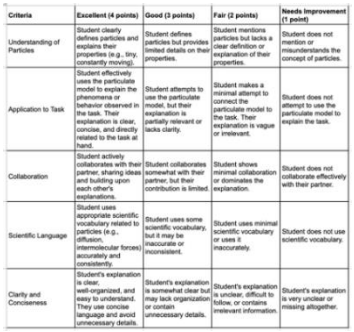
Misamis St., Bago Bantay, Quezon City
(02) 85229412
ncr@deped.gov.ph
https://www.depedncr.com.ph

		the LAS where they are asked: **3** things about the atomic models I understand now **2** ways by which scientists use models in science **1** question on models they still have Allow the learners to share their work with a partner for 3 minutes.	bubbles below by thinking of words that describe the following:  Invite the class to use the words they have thought of to construct a sentence that summarizes what they have learned in the lesson.	**3** things that they understand about the particle model of matter **2** things that they find interesting about pure substances **1** question they still have about the particle model of matter and how it explains what makes up matter Call on three volunteers to share their reflection.
Evaluating Learning	**Written Task** The learners will be given a set of questions that will serve as a formative assessment. *Read the questions carefully. Write your*	**Written Work** The learners will be given a set of questions that will serve as a formative assessment. Read each item carefully and choose the	**Written Work** The learners will be given a set of questions that will serve as formative assessment. Read the following situations carefully and with a partner describe	**Written Work** The learners will be given a set of questions that will serve as formative assessment. Match the following with the correct representation based on

Misamis St., Bago Bantay, Quezon City
(02) 85229412
ncr@deped.gov.ph
https://www.depedncr.com.ph

	answers on a separate sheet of paper. A. For each of the following scenarios, describe the model that might be suitable and briefly explain why: 1. A rocket scientist is designing a rocket launch. What model can he use to calculate the trajectory of the rocket, the amount of fuel needed, and the forces acting on a rocket? ***Answer:*** *a mathematical model to incorporate the factors* 2. Your teacher wants you to describe the water cycle in class. Which type of model can you use to explain this? ***Answer:*** *a conceptual model to explain the cycle*	letter of the best answer: 1. Scientists use models to represent matter because: A. Models are more accurate than real objects. B. Models can be easily shared and manipulated. C. Models are the only way to observe matter. D. Models look better than real matter. 2. Which of the following is NOT a type of model that may be used to describe what makes up matter? A. physical model B. mathematical model C. conceptual model D. emotional model 3. The model whose illustration shows negatively charged particles orbiting around the nucleus is credited to:	what happens using the particle model of matter. You may use illustrations to help your explanations: 1. Your friend sprays some perfume, and you are able to smell it from across the room. ***Sample answer:*** *The perfume consists of tiny particles and when you spray it, the perfume particles are released from the bottle and enter the air. They spread out in all directions, filling the empty spaces between the air particles. They bump into the air particles, moving them in random directions.* 2. Liquids can flow while solids can't. ***Sample answer:*** *In solids, the particles are packed very close together with minimal*	the particle model of matter: A. B. 1. oxygen a.  2. 24k gold bar b.  3. water c.  4. ice d.  5. water vapor e.  *Answer Key:* *1. e* *2. b* *3. a* *4. c* *5. d*

Misamis St., Bago Bantay, Quezon City
(02) 85229412
ncr@deped.gov.ph
https://www.depedncr.com.ph

	3.Suppose you want to help your friend figure out which of his running shoes helps him run the fastest. What model will help you? ***Answer:*** *a mathematical model to help predict his run times based on his shoes* B. Why do scientists use models? ***Sample answers:*** *Since science must be communicated, models help represent complex concepts.* *Since science is evidence-based, models make predictions and test hypotheses.* *Since science explains phenomena, models help visualize complex concepts, systems, and processes.*	A. John Dalton B. J. J. Thomson C. Ernest Rutherford D. Niels Bohr 4. A key limitation of the "plum pudding" model of the atom is it cannot explain: A. the existence of different elements. B. the positive charge of the atom. C. the stability of the atom. D. the discovery of the isotopes 5. Which of the following statements is TRUE about models used in science? A. Models are always perfect representations of reality. B. Models never change as our understanding of matter evolves. C. Models can be used to make predictions about the behavior of matter.	*space between them, and due to this, they cannot move freely past each other and so the solids cannot flow. Particles in liquids have more space between them compared to those in solids, allowing them more freedom of movement and so they can slide past each other readily. Liquids can flow and they take the shape of their container.* ***Suggested rubrics*** 	

Criteria	Excellent (4 points)	Good (3 points)	Fair (2 points)	Needs Improvement (1 point)
Understanding of Particles	Student clearly defines particles and explains their properties (e.g., tiny, constantly moving).	Student defines particles but provides limited details on their properties.	Student mentions particles but lacks a clear definition or explanation of their properties.	Student does not mention or misunderstands the concept of particles.
Application to Task	Student effectively uses the particulate model to explain the phenomena or behavior observed in the task. Their explanation is clear, concise, and directly related to the task at hand.	Student attempts to use the particulate model, but their explanation is partially relevant or lacks clarity.	Student makes a minimal attempt to connect the particulate model to the task. Their explanation is vague or irrelevant.	Student does not attempt to use the particulate model to explain the task.
Collaboration	Student actively collaborates with their partner, sharing ideas and building upon each other's explanations.	Student collaborates somewhat with their partner, but their contribution is limited.	Student shows minimal collaboration or dominates the explanation.	Student does not collaborate effectively with their partner.
Scientific Language	Student uses appropriate scientific vocabulary related to particles (e.g., diffusion, intermolecular forces) accurately and consistently.	Student uses some scientific vocabulary, but it may be inaccurate or inconsistent.	Student uses minimal scientific vocabulary or uses it inaccurately.	Student does not use scientific vocabulary.
Clarity and Conciseness	Student's explanation is clear, well-organized, and easy to understand. They use concise language and avoid unnecessary details.	Student's explanation is somewhat clear but may lack organization or contain unnecessary details.	Student's explanation is unclear, difficult to follow, or contains irrelevant information.	Student's explanation is very unclear or missing altogether.

Misamis St., Bago Bantay, Quezon City
(02) 85229412
ncr@deped.gov.ph
https://www.depedncr.com.ph

		D. Models are only used in science fiction. *KEY:* *1. b* *2. d* *3. c* *4. c* *5. c*		
Additional Activities for Application or Remediation (if applicable)	Answer the question below in your notebook. Did this lesson help you better identify the models scientists use to explain phenomena that cannot be easily seen or detected? If yes, how?	Answer the question below in your notebook. Did this lesson help you better describe and explain the models scientists use to explain phenomena that cannot be easily seen or detected? If yes, how?	The learners will be asked about the illustration of the particles of solids, liquids, and gas based on the story "Matthew Matterific" Matthew is a high school student who loves to cook. One day, his mother asked him a favor to cook food for their dinner. Matthew prepared all the ingredients he needed. He prepared the pan and the cooking oil. He put the meat on the pan together with the potato. He added condiments such as soy sauce and vinegar. His little sister Annie smelled the scent of Matthew's cooked food. He asked Annie to help him in the preparation of their dinner table. Annie gets the spoon, fork, dinner plate and glass. Annie poured the cold water onto each glass. Their father pulled the chair for their mom. The family blessed the food before eating. Matthew's mother and father complimented Matthew's prepared food because it was delicious. After the dinner, Annie together with her mother wash the dishes while Matthew get his Mathematics book because his father will help him on his assignment.	
Remarks				
Reflection				

Misamis St., Bago Bantay, Quezon City
(02) 85229412
ncr@deped.gov.ph
https://www.depedncr.com.ph