

BIG IDEAS:

Matter has mass, takes up space, and can change phase

CURRICULAR COMPETENCIES:

- Safely use appropriate tools to make observations and measurements, using formal measurements and digital technology as appropriate
- Compare results with predictions, suggesting possible reasons for findings
- Collect simple data
- Make predictions based on prior knowledge

CONTENT:

- Matter and its properties.

LEARNING INTENTIONS:**Curricular:**

- I can observe objects and identify the properties of matter.
- I can draw conclusions and record my observations.
- I can explain the difference between mass and volume.

Successful Learner Traits:

- I am thoughtful, compassionate and risk taking.

Rationale: Students will explore matter and its properties through experiential learning and group work.

Students will make observations, discuss ideas, draw conclusions and record their findings.

MATERIALS:

- Laptop and projector
- Strips with items and chart for categorization (1 every 2 students)
- A Book that Matters (one for each student)

ASSESSMENT:

Pre-learning assessment: brainstorming at beginning of class

Informal assessment of students' progress through Recording Sheet and A Book that Matters as well as through class participation/guiding questions.

ACCOMMODATIONS:

Enrichment: Bonus question

Instructions will be written on board for students who need to be reminded.

Additional time will be given to students who require it to complete activities.

Lesson Activities:

Teacher Activities	pacing
<p>Introduction:</p> <p>Questions to activate prior knowledge and engage student interest</p> <ul style="list-style-type: none">• What is matter? Co-create a list of matter and non-matter items. <p>Body</p> <p>STEP 1</p> <p>Video on matter 3:47 min(what is matter, characteristics, mass and volume): https://www.youtube.com/watch?v=ki4O-Fy3z-0</p> <p>STEP 2:</p> <ul style="list-style-type: none">• Ask students if they want to change or add anything to the list.• Ask students what the 2 things that define matter are: mass and volume. What is mass and what is volume? <p>STEP 3</p> <p>Item classification activity: handout chart and item cards. With a partner, review your “items” and categorize them to whether you believe <i>they are matter, are not matter, or you are unsure</i>. Make sure to advise students to place each “item” into three separate piles. Remind students that it is OK to respectfully challenge each other’s opinions.</p> <p>STEP 4</p> <p>Teacher then leads a discussion of what evidence students had for their decisions. Stress the importance of <i>constructing an argument and defending a position</i>- challenge students to explain why that made their decision and ask for evidence and <i>think critically</i>. Begin by having students share their most interesting or difficult item.</p> <p>STEP 5</p> <p>After all “tricky” items have been discussed, ask students to share if they were able to find common characteristics of items in the matter category as well as of items in the non-matter category. Write all characteristics of matter/non-matter on whiteboard. Cross out characteristics of matter until all students agree that ALL matter shares common characteristics (has weight, takes up space, has 3 forms: solid, liquid, gas, made up of small particles called atoms)</p> <p>Step 6: Exit Pass: have students write down the definition of matter and provide three examples of matter and non-matter</p>	<p>5</p> <p>4</p> <p>2-4</p> <p>10-15</p> <p>20</p> <p>10</p> <p>5</p>

Extensions:

Wind- can be felt and heard but is not matter, it is movement of matter (air)

Electricity- can see electricity (light bulb lighting up) and feel it but is just movement of electric charge, not matter

Sound- result of air movement against eardrum but not matter

Fire- the smoke that rises is matter the heat is energy and therefore not matter

Matter or Non-Matter?

Matter	Non-Matter	Unsure

electricity

sound

QOA School

helium

fear

clouds

light

friendship

butter

batteries

love

car exhaust

saliva

gasoline

paper

bacteria

temperature

skin cells

heat

a cat

wind

ideas

candy

a comet

religion

dust

pasta sauce

ice cream

heat

sunscreen

breath

happiness

apple juice

sadness

grass

water

smoke

the sun

blood

sweat

a pencil

germs

steam

ice

microwaves

a book

the moon

rain

snow

hair