

Okanagan School of Education - LESSON SEQUENCE/UNIT PLAN TEMPLATE			
Page One - Curriculum Connection/Pedagogical Plan			
Candidate/Intern: Blake Clark	Unit dates: TBD	Grade level(s): 5/6	Subject(s): Science
Big Idea(s): <i>What will the students <u>UNDERSTAND</u>? What are the key question(s) to be addressed?</i> (Foundation, Gr 3/4) All matter is made of particles. Matter has mass, takes up space, and can change phase. (Gr 5) Solutions are homogeneous. (Gr 6) Everyday materials are often mixtures. <i>Driving question: How does the particle model explain what matter is like and how it changes?</i>			
Curricular Competencies: <i>What will the students be able to <u>DO</u>? How will students reflect on their progress in acquiring and nurturing these skills?</i> • Make predictions about the findings of their inquiry. • Observe, measure, and record data, using appropriate tools, including digital technologies. • Compare data with predictions and develop explanations for results. • Identify First Peoples perspectives and knowledge as sources of information.			
Content: <i>What will the students <u>KNOW</u>? What content/concepts/key vocabulary will be the focus of this lesson sequence or unit of study?</i> Foundation (Gr 3/4 concepts, reviewed): • Matter has mass, takes up space, and is made of tiny particles • Heating and cooling change particle movement and state; physical changes are often reversible Grade 5 (Solutions): • Dissolving forms a solution; solubility of solids, liquids, and gases • Solutions separated by evaporation and crystallization Grade 6 (Mixtures): • Heterogeneous mixtures; separation by density and particle size • First Peoples separation and extraction methods (e.g., eulachon oil) Key vocabulary: • matter, property, solid, liquid, gas, particle, melting, freezing, evaporation, condensation, physical change, dissolve, solution, mixture, density			
Indigenous Perspectives: <i>How might Indigenous knowledges and ways of knowing be honoured and embedded authentically within this lesson sequence or unit of study?</i> • Learning is holistic, reflexive, reflective, experiential, and relational. • Learning involves generational roles and responsibilities. Eulachon grease (heat fish until the oil rises, skim, strain) and drying foods are long-standing First Peoples science. Shared with permission; invite a Syilx Knowledge Keeper via SD23 Aboriginal Education.			
Inclusive and Equitable Practice: <i>How is a safe and caring environment provided (emotional/physical)? Are there considerations for diverse interests/abilities? Are there access points for all learners and alternative ways to demonstrate what they know/can do? What grouping strategies are incorporated? Do students see themselves reflected in the learning?</i> Hands-on before vocabulary; role-play, PhET, picture cards, sentence starters. Checkpoint Reviews regroup to reteach or extend. Gr 6 extends to separating mixtures.			
/Collaborative Practice: <i>How will collaboration/co-planning/co-teaching be incorporated?</i> Shared with grade 5/6 partner classes.			
Safety Considerations: <i>Are there any lesson and/or venue specific safety issues to be noted?</i> Goggles for mixing and separating. No tasting; waft to smell. Students use warm tap water only; teacher alone handles the kettle. Wipe spills; wash hands. Check food allergies.			
Assessment Design			
What type of assessment might be embedded in this lesson sequence/unit of study? Formative Assessment: Assessment <u>for</u> Learning / Summative Assessment: Assessment <u>of</u> Learning; Metacognition: How are students reflecting on and monitoring their own learning? Documentation/Evidence of Learning: How will student learning be documented and shared (learning maps, rubrics, math journals, online documentation, etc.) Formative: exit tickets, activity sheets, observation checklist, and two Checkpoint Reviews (L5, L9). Summative: Particle Model Comic Explainer and End of Unit Concepts Check, with the unit rubric. Dates: TBD.			

Okanagan School of Education - LESSON SEQUENCE/UNIT PLAN

TEMPLATE

Page Two - Lesson Layout

Lesson # Estimated Dates	Overview of Teaching and Learning Activities	Teacher Preparation Materials/ resources or supplies needed
TBD (Period 1): Unit Launch	Lesson 1: What Is Matter? Matter has mass and takes up space. Is air matter? Sort things that are and are not matter.	Balloons Cup, water tub STW sheets
TBD (Period 2):	Lesson 2: Properties of Matter Describe matter by its physical properties. Group property hunt; riddles to identify objects.	Magnets (1 per group) Bowl of water Activity 2 + STW
TBD (Period 3):	Lesson 3: Solids, Liquids, and Gases Compare shape and volume in each state. Oobleck: solid or liquid?	Syringes Cornstarch STW sort
TBD (Period 4):	Lesson 4: The Particle Model Gather evidence that matter is made of moving particles. Act out and simulate particles in each state.	Food colouring PhET sim STW chart
TBD (Period 5): Review	Lesson 5: Checkpoint Review 1: States and Particles Review game and particle drawing clinic. Regroup: reteach or extend, based on exit tickets.	Whiteboards Exit tickets STW game
TBD (Period 6):	Lesson 6: Heating, Cooling, and Changing State Melting, freezing, evaporation, condensation. Explain each change with particles.	Ice, foil Cold cup STW sheet
TBD (Period 7):	Lesson 7: Physical Changes All Around Physical change vs chemical change (intro). Reversible or not? Sort everyday changes.	Change cards Vinegar demo Activity 7
TBD (Period 8):	Lesson 8: Dissolving and Mixtures Gr 5: dissolving, solutions, evaporation. Gr 6: mixtures, filtering, settling; eulachon oil.	Salt, sand, oil Filters Activity 8
TBD (Period 9): Review	Lesson 9: Checkpoint Review 2: Connecting the Ideas Concept map: particles to states to changes to mixtures. Practice check; plan the comic explainer.	Map cards Tracker STW crossword
TBD (Period 10): Assessment	Lesson 10: Show What You Know Particle Model Comic Explainer. End of Unit Concepts Check; revisit "Is air matter?"	Comic sheet Concepts Check Rubric

Okanagan School of Education - LESSON PLAN TEMPLATE

Page One - Curriculum Connection/Pedagogical Plan

Candidate/Intern: Blake Clark

Lesson date:
TBD

Grade Level/Subject(s): 5/6 / Science

Lesson Title/Task Summary:

Lesson 1: What Is Matter?

Unit launch: matter is anything that has mass and takes up space. Is air matter?

Core (Sub) Competency:
Critical & Reflective Thinking
Communicating

Unit Focus: Grade 5/6 Science - Matter and the Particle Model

Big Idea(s):

What will the students UNDERSTAND? What are the key question(s) to be addressed?

(Foundation) Matter has mass, takes up space, and can change phase.

What counts as matter, and how can we prove it?

Curricular Competencies:

What will the students be able to DO? What skills are being taught? Are learning targets or "I can..." statements written in student-friendly language?

1. I can explain that matter has mass and takes up space.
2. I can sort examples into matter and not matter.
3. I can use evidence to show that air is matter.

Content:

What will the students KNOW? What content/concepts/key vocabulary will be the focus of this lesson?

1. Matter is anything that has mass and takes up space (Gr 3/4 foundation)
2. Making predictions and observations (Gr 5/6 competency)
3. Key vocabulary: matter, mass, volume, evidence

Indigenous Perspectives:

How might "Indigenous knowledges and ways of knowing and being" be honoured and embedded authentically into the lesson?

1. Learning is holistic, reflexive, reflective, experiential, and relational.
2. Learning ultimately supports the well-being of the self, the family, the community, the land, the spirits, and the ancestors.

Everything on the land (water, rock, air, plants) is matter and connected; the Syilx Four Food Chiefs story frames respect for what the land provides.

Inclusive and Equitable Practice:

How is a safe and caring environment provided (emotional/physical)? Are there considerations for diverse interests/abilities? Are there access points for all learners and alternative ways to demonstrate what they know/can do? What grouping strategies are incorporated? Do students see themselves reflected in the learning?

1. Picture sort cards and a sentence starter: "I know it is matter because..."
2. Partners test, record, and explain together.

Collaborative Practice:

How might collaboration/co-planning/co-teaching be incorporated?

Shared with grade 5/6 partner classes.

Safety Considerations:

Are there any lesson and/or venue specific safety issues to be noted?

Wipe water spills at once. Balloons: check for latex allergies.

Assessment Design

What type of assessment might be embedded in this lesson?

Formative Assessment: Assessment *for* Learning / **Summative Assessment:** Assessment *of* Learning.

Formative: printable exit ticket (define matter; evidence that air is matter).

Metacognition: How are students reflecting on and monitoring their own learning?

What surprised you about what counts as matter?

Documentation/Evidence of Learning: How will student learning be documented and shared (learning maps, rubrics, math journals, online documentation, etc.)

Exit tickets sorted into got it / getting there to plan Lesson 2 groups.

Okanagan School of Education - LESSON PLAN TEMPLATE

Page Two - Minute Minder

Considerations for lesson planning:		Estimated time	Teaching and Learning Activities What is the role of the teacher? What is the role of the students?	Teacher Preparation (Materials/resources or supplies needed)
CONNECT	PART ONE INTRODUCTION TO LESSON Activate Prior Knowledge, Engage, Predict, Focus How can I tap into students' interest, offer appropriate challenge, increase motivation?	5/10 Minutes	- Mystery question: Is air matter? Students predict and explain. - Balance an empty and an inflated balloon on a metre stick. What happens?	Let's Talk Science: Describing and Classifying Matter (teacher background): https://letstalkscience.ca/educational-resources/backgrounders/describing-and-classifying-matter
	PART TWO BODY OF LESSON Construct meaning, monitor understanding, process ideas How will I help students interact with ideas they encounter?	25/30 Minutes	- Paper towel in an upside-down cup, pushed under water: does it stay dry? Why? - Sort cards: matter or not matter (rock, juice, air, light, sound, heat). - STW Deep Thoughts About Matter: does air have mass? how do we observe gases?	STW: Deep Thoughts About Matter (worksheet + answer key) STW: Matter Demonstrations (teacher sheet: Finding the Mass of Air, Magic Paper Towel) Super Teacher Worksheets (member login): https://www.superteacherworksheets.com/matter.html learn.syilx.org How Food Was Given: Four Food Chiefs (teacher background): https://learn.syilx.org/how-food-was-given-four-food-chiefs/

TRANSFORM	<u>PART THREE</u> CLOSURE OF LESSON Apply knowledge; reflect on thinking and learning How can I provide learners with alternative ways to demonstrate what they know?	5/10 Minutes	• Exit ticket (printable). • Post a wonder question on the class Matter Wonder Wall.	Exit ticket handout (printable)

Exit Ticket

Lesson 1: What Is Matter?

5/6 Science - Matter and the Particle Model

Name: _____ Date: _____

1. What two things make something matter?

2. Is air matter? Give one piece of evidence from today.

3. Light is not matter. Explain why not.

(Grade 6 / challenge)

Self-check: Today I can explain what matter is.

[] Yes, on my own [] Getting there [] I need more help

Okanagan School of Education - LESSON PLAN TEMPLATE

Page One - Curriculum Connection/Pedagogical Plan

Candidate/Intern: Blake Clark

Lesson date:
TBD

Grade Level/Subject(s): 5/6 / Science

Lesson Title/Task Summary:

Lesson 2: Properties of Matter

Describe and identify matter by its physical properties in a group property hunt.

Core (Sub) Competency:

Critical & Reflective Thinking
Communicating

Unit Focus: Grade 5/6 Science - Matter and the Particle Model

Big Idea(s):

What will the students UNDERSTAND? What are the key question(s) to be addressed?

(Gr 6) Everyday materials are often mixtures.

How can properties help us describe, identify, and later separate matter?

Curricular Competencies:

What will the students be able to DO? What skills are being taught? Are learning targets or "I can..." statements written in student-friendly language?

1. I can describe an object using at least three physical properties.
2. I can test properties like magnetism, hardness, and floating.
3. I can identify a mystery object from its properties.

Content:

What will the students KNOW? What content/concepts/key vocabulary will be the focus of this lesson?

1. Physical properties: colour, texture, hardness, magnetism, floats or sinks
2. Properties are used later to separate mixtures (Gr 6 link)
3. Key vocabulary: property, observe, magnetic, transparent, flexible

Indigenous Perspectives:

How might "Indigenous knowledges and ways of knowing and being" be honoured and embedded authentically into the lesson?

1. Learning is holistic, reflexive, reflective, experiential, and relational.
2. Learning involves patience and time.

First Peoples chose materials by their properties (cedar that bends, stone that holds an edge), knowledge gained by close observation over generations.

Inclusive and Equitable Practice:

How is a safe and caring environment provided (emotional/physical)? Are there considerations for diverse interests/abilities? Are there access points for all learners and alternative ways to demonstrate what they know/can do? What grouping strategies are incorporated? Do students see themselves reflected in the learning?

1. Groups of 4 with roles; test hints for each property on the hunt sheet.
2. Gr 5 writes a 3-clue riddle; Gr 6 adds which property could separate two finds.

Collaborative Practice:

How might collaboration/co-planning/co-teaching be incorporated?

Shared with grade 5/6 partner classes.

Safety Considerations:

Are there any lesson and/or venue specific safety issues to be noted?

Magnets away from devices. Walk; hunt inside the classroom only. No tasting.

Assessment Design

What type of assessment might be embedded in this lesson?

Formative Assessment: Assessment for Learning / **Summative Assessment:** Assessment of Learning.

Formative: printable exit ticket (describe an object; match a property to a test).

Metacognition: How are students reflecting on and monitoring their own learning?

Which property was hardest to find or test, and why?

Documentation/Evidence of Learning: How will student learning be documented and shared (learning maps, rubrics, math journals, online documentation, etc.)

Hunt sheets, riddles, and exit tickets reviewed.

Okanagan School of Education - LESSON PLAN TEMPLATE

Page Two - Minute Minder

Considerations for lesson planning:		Estimated time	Teaching and Learning Activities What is the role of the teacher? What is the role of the students?	Teacher Preparation (Materials/resources or supplies needed)
CONNECT	<u>PART ONE</u> INTRODUCTION TO LESSON Activate Prior Knowledge, Engage, Predict, Focus How can I tap into students' interest, offer appropriate challenge, increase motivation?	5/10 Minutes	• Feely bag: describe an object without naming it; class guesses. • Quick demo: float or sink? Class predicts, then test 3 objects.	Let's Talk Science: Describing and Classifying Matter (physical properties): https://letstalkscience.ca/educational-resources/backgrounders/describing-and-classifying-matter
	<u>PART TWO</u> BODY OF LESSON Construct meaning, monitor understanding, process ideas How will I help students interact with ideas they encounter?	25/30 Minutes	• Groups hunt the room for 2 of each: magnetic, see-through, flexible, hard, rough, shiny. • Test each find (magnet, bend, fingernail scratch); record on Activity 2: Property Hunt. • Write a 3-clue riddle; groups trade and guess.	Activity 2 - Property Hunt (printable, 1 per group) + 1 magnet per group STW: Why Does Matter Matter? (early finishers; shape, mass, volume) FNEsc Science First Peoples Teacher Resource Guide Gr 5 to 9 (teacher background): https://www.fnesc.ca/science-first-peoples/
	<u>PART THREE</u> CLOSURE OF LESSON Apply knowledge; reflect on thinking and learning How can I provide learners with alternative ways to demonstrate what they know?	5/10 Minutes	• Reporters read riddles; class guesses. Exit ticket (printable). • Share: which property would help you separate a mixed-up pile?	Exit ticket handout (printable)

Exit Ticket

Lesson 2: Properties of Matter

5/6 Science - Matter and the Particle Model

Name: _____ Date: _____

1. Describe a pencil using three physical properties.

2. Match: magnet test, float test, bend test. Which property does each check?

3. Iron filings are mixed with sand. Which property helps you separate them?

(Grade 6 / challenge)

Self-check: Today I can describe matter by its properties.

☐ Yes, on my own ☐ Getting there ☐ I need more help

Activity 2: Property Hunt

Grade 5/6 Science - Matter and the Particle Model

Name: _____ Date: _____

Lesson 2 group activity. Roles: Tester, Recorder, Reporter, Materials Manager. Find TWO classroom objects for each property. Test each one, then record it.

Property	Test	Object we found	Passed? (yes / no)	Quick sketch
magnetic	sticks to the magnet			
see-through	you can see clearly through it			
flexible	bends without breaking			
hard	a fingernail does not scratch it			
rough	bumpy when you rub it			
shiny	reflects light			

Stump the Class: our 3-clue riddle

Pick one object you found. Write 3 property clues. Do not name it!

Clue 1: I am _____

Clue 2: I am _____

Clue 3: I am _____

Answer (keep secret): _____ Riddle we solved: _____

Grade 6 challenge

Two of your finds are mixed together in a box. Which property would you use to separate them? Explain how.

Okanagan School of Education - LESSON PLAN TEMPLATE

Page One - Curriculum Connection/Pedagogical Plan

Candidate/Intern: Blake Clark

Lesson date:
TBD

Grade Level/Subject(s): 5/6 / Science

Lesson Title/Task Summary:

Lesson 3: Solids, Liquids, and Gases

Compare the shape and volume of solids, liquids, and gases; test oobleck.

Core (Sub) Competency:

Critical & Reflective Thinking
Communicating

Unit Focus: Grade 5/6 Science - Matter and the Particle Model

Big Idea(s):

What will the students UNDERSTAND? What are the key question(s) to be addressed?

(Foundation) Matter has mass, takes up space, and can change phase.

How are solids, liquids, and gases different?

Curricular Competencies:

What will the students be able to DO? What skills are being taught? Are learning targets or "I can..." statements written in student-friendly language?

1. I can describe the shape and volume of solids, liquids, and gases.
2. I can classify everyday materials by state.
3. I can use evidence to decide the state of a tricky material.

Content:

What will the students KNOW? What content/concepts/key vocabulary will be the focus of this lesson?

1. Three states of matter: solid, liquid, gas (Gr 4 foundation)
2. Shape and volume: fixed or not fixed
3. Key vocabulary: solid, liquid, gas, shape, volume, compress

Indigenous Perspectives:

How might "Indigenous knowledges and ways of knowing and being" be honoured and embedded authentically into the lesson?

1. Learning is holistic, reflexive, reflective, experiential, and relational.
2. Learning is embedded in memory, history, and story.

Water is honoured in many First Peoples teachings; students notice water as ice, lake, and mist on the land around them.

Inclusive and Equitable Practice:

How is a safe and caring environment provided (emotional/physical)? Are there considerations for diverse interests/abilities? Are there access points for all learners and alternative ways to demonstrate what they know/can do? What grouping strategies are incorporated? Do students see themselves reflected in the learning?

1. Shape and volume chart with picture examples.
2. Hands-on stations before any vocabulary is named.

Collaborative Practice:

How might collaboration/co-planning/co-teaching be incorporated?

Shared with grade 5/6 partner classes.

Safety Considerations:

Are there any lesson and/or venue specific safety issues to be noted?

Goggles for oobleck. Syringes without needles only. Wipe spills; do not pour oobleck down the sink.

Assessment Design

What type of assessment might be embedded in this lesson?

Formative Assessment: Assessment *for* Learning / **Summative Assessment:** Assessment *of* Learning.

Formative: printable exit ticket (shape and volume table; classify three items).

Metacognition: How are students reflecting on and monitoring their own learning?

Was oobleck a solid or a liquid? What changed your mind?

Documentation/Evidence of Learning: How will student learning be documented and shared (learning maps, rubrics, math journals, online documentation, etc.)

Observation checklist: uses shape and volume as evidence.

Okanagan School of Education - LESSON PLAN TEMPLATE

Page Two - Minute Minder

Considerations for lesson planning:		Estimated time	Teaching and Learning Activities What is the role of the teacher? What is the role of the students?	Teacher Preparation (Materials/resources or supplies needed)
CONNECT	PART ONE INTRODUCTION TO LESSON Activate Prior Knowledge, Engage, Predict, Focus How can I tap into students' interest, offer appropriate challenge, increase motivation?	5/10 Minutes	- Watch: States of Matter for Kids (Learn Bright). - Predict: does a liquid keep its shape? does a gas?	Learn Bright: States of Matter for Kids (video): https://www.youtube.com/watch?v=24Yromifcss TVOKids Science Max: Solids, Liquids, and Gasses (video): https://www.tvokids.com/school-age/science-max-experiments-large/videos/solids-liquids-and-gasses
	PART TWO BODY OF LESSON Construct meaning, monitor understanding, process ideas How will I help students interact with ideas they encounter?	25/30 Minutes	- Stations: block in 3 containers; water in 3 containers; squeeze a sealed air syringe. - STW Matter Cut, Sort, Glue; then STW What's the Matter? (shape and volume). - Oobleck test: poke fast, then slowly. Solid or liquid?	STW: Matter Cut, Sort, Glue STW: What's the Matter? (worksheet + answer key) Super Teacher Worksheets (member login): https://www.superteacherworksheets.com/matter.html Science World: Oobleck activity: https://www.scienceworld.ca/resource/oobleck/

TRANSFORM	<u>PART THREE</u> CLOSURE OF LESSON Apply knowledge; reflect on thinking and learning How can I provide learners with alternative ways to demonstrate what they know?	5/10 Minutes	• Exit ticket (printable). • Vote with evidence: oobleck is a ____ because ____.	Exit ticket handout (printable)

Exit Ticket

Lesson 3: Solids, Liquids, and Gases

5/6 Science - Matter and the Particle Model

Name: _____ Date: _____

1. Complete: A solid has a fixed ____ and a fixed ____.

2. Classify: juice, steam, a rock. Write solid, liquid, or gas.

3. Is oobleck a solid or a liquid? Use evidence from today.

(Grade 6 / challenge)

Self-check: Today I can tell solids, liquids, and gases apart.

☐ Yes, on my own ☐ Getting there ☐ I need more help

Okanagan School of Education - LESSON PLAN TEMPLATE

Page One - Curriculum Connection/Pedagogical Plan

Candidate/Intern: Blake Clark

Lesson date:
TBD

Grade Level/Subject(s): 5/6 / Science

Lesson Title/Task Summary:

Lesson 4: The Particle Model

Gather evidence that matter is made of tiny, moving particles; act out and simulate each state.

Core (Sub) Competency:
Critical & Reflective Thinking
Creative Thinking

Unit Focus: Grade 5/6 Science - Matter and the Particle Model

Big Idea(s):

What will the students UNDERSTAND? What are the key question(s) to be addressed?

(Foundation, Gr 3) All matter is made of particles.

What evidence shows that matter is made of tiny moving particles?

Curricular Competencies:

What will the students be able to DO? What skills are being taught? Are learning targets or "I can..." statements written in student-friendly language?

1. I can state the key ideas of the particle model.
2. I can draw particles in a solid, a liquid, and a gas.
3. I can use the particle model to explain an observation.

Content:

What will the students KNOW? What content/concepts/key vocabulary will be the focus of this lesson?

1. Particle model: tiny particles, spaces between, always moving, faster when warmer
2. Atoms are building blocks of matter (Gr 3 foundation)
3. Key vocabulary: particle, model, atom, spaces, vibrate, diffuse

Indigenous Perspectives:

How might "Indigenous knowledges and ways of knowing and being" be honoured and embedded authentically into the lesson?

1. Learning is holistic, reflexive, reflective, experiential, and relational.
2. Learning involves patience and time.

Scientists and Knowledge Keepers both learn by patient observation of what is too small or slow to see at once; the model is a way of seeing.

Inclusive and Equitable Practice:

How is a safe and caring environment provided (emotional/physical)? Are there considerations for diverse interests/abilities? Are there access points for all learners and alternative ways to demonstrate what they know/can do? What grouping strategies are incorporated? Do students see themselves reflected in the learning?

1. Whole-body particle role-play before drawing.
2. Particle model poster with four picture icons; Gr 6 explains compressing gases.

Collaborative Practice:

How might collaboration/co-planning/co-teaching be incorporated?

Shared with grade 5/6 partner classes.

Safety Considerations:

Are there any lesson and/or venue specific safety issues to be noted?

Teacher pours warm water; students use warm tap water only. Food colouring stains: aprons or old shirts.

Assessment Design

What type of assessment might be embedded in this lesson?

Formative Assessment: Assessment *for* Learning / **Summative Assessment:** Assessment *of* Learning.

Formative: printable exit ticket (draw three states; explain the food colouring result).

Metacognition: How are students reflecting on and monitoring their own learning?

How is a model helpful, even if it is not the real thing?

Documentation/Evidence of Learning: How will student learning be documented and shared (learning maps, rubrics, math journals, online documentation, etc.)

Exit tickets used to form Checkpoint Review groups (Lesson 5).

Okanagan School of Education - LESSON PLAN TEMPLATE

Page Two - Minute Minder

Considerations for lesson planning:		Estimated time	Teaching and Learning Activities What is the role of the teacher? What is the role of the students?	Teacher Preparation (Materials/resources or supplies needed)
CONNECT	PART ONE INTRODUCTION TO LESSON Activate Prior Knowledge, Engage, Predict, Focus How can I tap into students' interest, offer appropriate challenge, increase motivation?	5/10 Minutes	- Drop food colouring into cold and warm water. Predict, then watch. - Ask: why did it spread? Why faster in warm water?	Let's Talk Science: Introduction to the Particle Theory of Matter (teacher background): https://letstalkscience.ca/educational-resources/backgrounders/introduction-particle-theory-matter
	PART TWO BODY OF LESSON Construct meaning, monitor understanding, process ideas How will I help students interact with ideas they encounter?	25/30 Minutes	- Watch: States of Matter and Particle Theory for Kids. - Act it out: students are particles in a solid, liquid, gas. - PhET: add heat; label particles on the STW States of Matter Anchor Chart.	The Animated Teacher: States of Matter and Particle Theory for Kids (video): https://www.youtube.com/watch?v=oMbb-TTIFU4 PhET: States of Matter: Basics (simulation): https://phet.colorado.edu/en/simulations/states-of-matter-basics STW: States of Matter Anchor Chart (particles; water in 3 states) STW: Matter Atoms Picture (display) and Three States of Matter article (reading) Super Teacher Worksheets (member login): https://www.superteacherworksheets.com/matter.html

TRANSFORM	<u>PART THREE</u> CLOSURE OF LESSON Apply knowledge; reflect on thinking and learning How can I provide learners with alternative ways to demonstrate what they know?	5/10 Minutes	• Exit ticket (printable). • Add the particle model poster to the science wall.	Exit ticket handout (printable)

Exit Ticket

Lesson 4: The Particle Model

5/6 Science - Matter and the Particle Model

Name: _____ Date: _____

1. Draw the particles in a solid, a liquid, and a gas (three small boxes).

2. Why did the food colouring spread faster in warm water?

3. Use particles to explain why a gas can be squeezed but a solid cannot.

(Grade 6 / challenge)

Self-check: Today I can explain the particle model.

☐ Yes, on my own ☐ Getting there ☐ I need more help

Okanagan School of Education - LESSON PLAN TEMPLATE

Page One - Curriculum Connection/Pedagogical Plan

Candidate/Intern: Blake Clark

Lesson date:
TBD

Grade Level/Subject(s): 5/6 / Science

Lesson Title/Task Summary:

Lesson 5: Checkpoint Review 1 - States and Particles

Review lessons 1 to 4; regroup from exit-ticket data to reteach or extend before moving on.

Core (Sub) Competency:

Critical & Reflective Thinking

Personal Awareness & Responsibility

Unit Focus: Grade 5/6 Science - Matter and the Particle Model

Big Idea(s):

What will the students UNDERSTAND? What are the key question(s) to be addressed?

(Foundation) All matter is made of particles.

What do I understand about matter, states, and particles, and what do I still need?

Curricular Competencies:

What will the students be able to DO? What skills are being taught? Are learning targets or "I can..." statements written in student-friendly language?

1. I can explain matter, properties, and states in my own words.
2. I can draw and explain particles in each state.
3. I can name what I understand and what I need to practise.

Content:

What will the students KNOW? What content/concepts/key vocabulary will be the focus of this lesson?

1. Review: matter, properties, states, particle model (Lessons 1 to 4)
2. Self-assessment and goal setting (Gr 5/6 competency)
3. Key vocabulary: all terms from Lessons 1 to 4

Indigenous Perspectives:

How might "Indigenous knowledges and ways of knowing and being" be honoured and embedded authentically into the lesson?

1. Learning involves patience and time.
2. Learning requires exploration of one's identity.

Taking time to look back before moving on honours learning that grows with patience.

Inclusive and Equitable Practice:

How is a safe and caring environment provided (emotional/physical)? Are there considerations for diverse interests/abilities? Are there access points for all learners and alternative ways to demonstrate what they know/can do? What grouping strategies are incorporated? Do students see themselves reflected in the learning?

1. Reteach group (teacher-led, hands-on repeat) and extension group (challenge cards).
2. Mini whiteboards let every student answer without speaking aloud.

Collaborative Practice:

How might collaboration/co-planning/co-teaching be incorporated?

Shared with grade 5/6 partner classes.

Safety Considerations:

Are there any lesson and/or venue specific safety issues to be noted?

No lab hazards. Four-corners game: walk, do not run.

Assessment Design

What type of assessment might be embedded in this lesson?

Formative Assessment: Assessment *for* Learning / **Summative Assessment:** Assessment *of* Learning.

Formative: printable exit ticket (three quick checks) and the I Can Tracker, first update.

Metacognition: How are students reflecting on and monitoring their own learning?

What is one idea you can now explain better than before?

Documentation/Evidence of Learning: How will student learning be documented and shared (learning maps, rubrics, math journals, online documentation, etc.)

Results used to confirm readiness for Lesson 6 or plan small-group support.

Okanagan School of Education - LESSON PLAN TEMPLATE

Page Two - Minute Minder

Considerations for lesson planning:		Estimated time	Teaching and Learning Activities What is the role of the teacher? What is the role of the students?	Teacher Preparation (Materials/resources or supplies needed)
CONNECT	<u>PART ONE</u> INTRODUCTION TO LESSON Activate Prior Knowledge, Engage, Predict, Focus How can I tap into students' interest, offer appropriate challenge, increase motivation?	5/10 Minutes	- Four corners review: solid, liquid, gas, not matter. Students move and justify. - Mini whiteboard quick fire: draw particles for each state.	Returned exit tickets from Lessons 1 to 4 Student I Can Tracker (printable)
	<u>PART TWO</u> BODY OF LESSON Construct meaning, monitor understanding, process ideas How will I help students interact with ideas they encounter?	25/30 Minutes	- Reteach group: redo food colouring and particle role-play with the teacher. - On-track group: STW Matter Pictures (find solids, liquids, gases); then STW cootie catcher. - Extension group: why is oobleck tricky for the particle model?	STW: Matter Pictures (worksheet + answer key) STW: Foldable Game: Matter (cootie catcher) Super Teacher Worksheets (member login): https://www.superteacherworksheets.com/matter.html PhET: States of Matter: Basics (review): https://phet.colorado.edu/en/simulations/states-of-matter-basics Learn Bright video (reteach replay): https://www.youtube.com/watch?v=24Yromifcss
TRANSFORM	<u>PART THREE</u> CLOSURE OF LESSON Apply knowledge; reflect on thinking and learning How can I provide learners with alternative ways to demonstrate what they know?	5/10 Minutes	- Exit ticket (printable). - Update the I Can Tracker for Lessons 1 to 4.	Exit ticket handout (printable)

Exit Ticket

Lesson 5: Checkpoint Review 1 - States and Particles

5/6 Science - Matter and the Particle Model

Name: _____ Date: _____

1. Matter is anything that has ____ and takes up ____.

2. Which state has particles packed tight and vibrating in place?

3. Explain why a balloon gets bigger when you blow more air in, using particles.

(Grade 6 / challenge)

Self-check: Today I can explain states of matter using particles.

☐ Yes, on my own ☐ Getting there ☐ I need more help

Okanagan School of Education - LESSON PLAN TEMPLATE

Page One - Curriculum Connection/Pedagogical Plan

Candidate/Intern: Blake Clark

Lesson date:
TBD

Grade Level/Subject(s): 5/6 / Science

Lesson Title/Task Summary:

Lesson 6: Heating, Cooling, and Changing State

Observe melting, freezing, evaporation, and condensation, and explain each with particles.

Core (Sub) Competency:
Critical & Reflective Thinking
Communicating

Unit Focus: Grade 5/6 Science - Matter and the Particle Model

Big Idea(s):

What will the students UNDERSTAND? What are the key question(s) to be addressed?

(Foundation, Gr 4) Matter has mass, takes up space, and can change phase.

How does heating or cooling change the state of matter?

Curricular Competencies:

What will the students be able to DO? What skills are being taught? Are learning targets or "I can..." statements written in student-friendly language?

1. I can name melting, freezing, evaporation, and condensation.
2. I can explain a change of state using particle movement.
3. I can show that these changes are reversible.

Content:

What will the students KNOW? What content/concepts/key vocabulary will be the focus of this lesson?

1. Solids, liquids, and gases change with heating and cooling; reversible (Gr 4 foundation)
2. Melting point, freezing point, boiling point
3. Key vocabulary: melt, freeze, evaporate, condense, reversible

Indigenous Perspectives:

How might "Indigenous knowledges and ways of knowing and being" be honoured and embedded authentically into the lesson?

1. Learning is holistic, reflexive, reflective, experiential, and relational.
2. Learning involves generational roles and responsibilities.

Many First Peoples dried foods such as salmon and berries for winter: water evaporates, food keeps. Knowledge passed between generations.

Inclusive and Equitable Practice:

How is a safe and caring environment provided (emotional/physical)? Are there considerations for diverse interests/abilities? Are there access points for all learners and alternative ways to demonstrate what they know/can do? What grouping strategies are incorporated? Do students see themselves reflected in the learning?

1. Change-of-state cycle diagram with arrows and pictures.
2. Gr 6 explains condensation on a cold cup with particles.

Collaborative Practice:

How might collaboration/co-planning/co-teaching be incorporated?

Shared with grade 5/6 partner classes.

Safety Considerations:

Are there any lesson and/or venue specific safety issues to be noted?

Teacher-only kettle demo; students stay back from steam. Ice: no throwing.

Assessment Design

What type of assessment might be embedded in this lesson?

Formative Assessment: Assessment *for* Learning / **Summative Assessment:** Assessment *of* Learning.

Formative: printable exit ticket (name the change; explain with particles).

Metacognition: How are students reflecting on and monitoring their own learning?

Where do you see changes of state at home?

Documentation/Evidence of Learning: How will student learning be documented and shared (learning maps, rubrics, math journals, online documentation, etc.)

Observation checklist: explains changes with particle movement.

Okanagan School of Education - LESSON PLAN TEMPLATE

Page Two - Minute Minder

Considerations for lesson planning:		Estimated time	Teaching and Learning Activities What is the role of the teacher? What is the role of the students?	Teacher Preparation (Materials/resources or supplies needed)
CONNECT	PART ONE INTRODUCTION TO LESSON Activate Prior Knowledge, Engage, Predict, Focus How can I tap into students' interest, offer appropriate challenge, increase motivation?	5/10 Minutes	- Ice melting race: hand, desk, foil. Predict the winner and why. - Watch: States of Matter and Changes of State.	Smile and Learn: States of Matter and Changes of State (video): https://www.youtube.com/watch?v=vNvElea-124
	PART TWO BODY OF LESSON Construct meaning, monitor understanding, process ideas How will I help students interact with ideas they encounter?	25/30 Minutes	- Teacher demo: steam from a kettle hits a cold plate (condensation). - Cold cup of ice water: where does the outside water come from? - PhET: heat and cool; complete STW Changing Water (use the Celsius answers).	PhET: States of Matter: Basics (heat and cool): https://phet.colorado.edu/en/simulations/states-of-matter-basics Science World: Exploring States of Matter (teacher background; skip dry ice and liquid nitrogen): https://www.scienceworld.ca/resource/exploring-states-matter/ STW: Changing Water (worksheet + answer key) Super Teacher Worksheets (member login): https://www.superteacherworksheets.com/matter.html

TRANSFORM	<u>PART THREE</u> CLOSURE OF LESSON Apply knowledge; reflect on thinking and learning How can I provide learners with alternative ways to demonstrate what they know?	5/10 Minutes	• Exit ticket (printable). • Chalk outline of a puddle; check it next period (evaporation).	Exit ticket handout (printable)

Exit Ticket

Lesson 6: Heating, Cooling, and Changing State

5/6 Science - Matter and the Particle Model

Name: _____ Date: _____

1. Name each change: ice to water; water to water vapour; water vapour to droplets.

2. What happens to particles when ice melts?

3. Why does the outside of a cold cup get wet? Use particles.

(Grade 6 / challenge)

Self-check: Today I can explain how heating and cooling change the state of matter.

[] Yes, on my own [] Getting there [] I need more help

Okanagan School of Education - LESSON PLAN TEMPLATE

Page One - Curriculum Connection/Pedagogical Plan

Candidate/Intern: Blake Clark

Lesson date:
TBD

Grade Level/Subject(s): 5/6 / Science

Lesson Title/Task Summary:

Lesson 7: Physical Changes All Around

Tell physical changes from chemical changes, and sort everyday changes as reversible or not.

Core (Sub) Competency:
Critical & Reflective Thinking
Communicating

Unit Focus: Grade 5/6 Science - Matter and the Particle Model

Big Idea(s):

What will the students UNDERSTAND? What are the key question(s) to be addressed?

(Foundation, Gr 4) Physical changes do not make a new substance.

How can we tell whether a change makes a new substance?

Curricular Competencies:

What will the students be able to DO? What skills are being taught? Are learning targets or "I can..." statements written in student-friendly language?

1. I can explain that a physical change keeps the same substance.
2. I can sort changes as physical or chemical using evidence.
3. I can tell whether a physical change is reversible.

Content:

What will the students KNOW? What content/concepts/key vocabulary will be the focus of this lesson?

1. Physical change: size, shape, or state changes; same substance
2. Chemical change (intro): a new substance; signs such as gas, colour, heat or light
3. Key vocabulary: physical change, chemical change, reversible, evidence

Indigenous Perspectives:

How might "Indigenous knowledges and ways of knowing and being" be honoured and embedded authentically into the lesson?

1. Learning is holistic, reflexive, reflective, experiential, and relational.
2. Learning involves recognizing the consequences of one's actions.

Some changes cannot be undone; this links to caring for materials and the land with thought for what comes after.

Inclusive and Equitable Practice:

How is a safe and caring environment provided (emotional/physical)? Are there considerations for diverse interests/abilities? Are there access points for all learners and alternative ways to demonstrate what they know/can do? What grouping strategies are incorporated? Do students see themselves reflected in the learning?

1. Picture change cards and an evidence checklist (new substance?).
2. Gr 6 explains why dissolving is physical, not chemical.

Collaborative Practice:

How might collaboration/co-planning/co-teaching be incorporated?

Shared with grade 5/6 partner classes.

Safety Considerations:

Are there any lesson and/or venue specific safety issues to be noted?

Baking soda and vinegar is a teacher demo; goggles on for anyone near.

Assessment Design

What type of assessment might be embedded in this lesson?

Formative Assessment: Assessment for Learning / **Summative Assessment:** Assessment of Learning.

Formative: printable exit ticket (classify four changes; reversible?).

Metacognition: How are students reflecting on and monitoring their own learning?

Which change was hardest to classify? What evidence helped?

Documentation/Evidence of Learning: How will student learning be documented and shared (learning maps, rubrics, math journals, online documentation, etc.)

Activity 7 sorts reviewed for misconceptions.

Okanagan School of Education - LESSON PLAN TEMPLATE

Page Two - Minute Minder

Considerations for lesson planning:		Estimated time	Teaching and Learning Activities What is the role of the teacher? What is the role of the students?	Teacher Preparation (Materials/resources or supplies needed)
CONNECT	<u>PART ONE</u> INTRODUCTION TO LESSON Activate Prior Knowledge, Engage, Predict, Focus How can I tap into students' interest, offer appropriate challenge, increase motivation?	5/10 Minutes	• Show: crumpled paper, melted chocolate, burnt toast. Same stuff or new stuff? • Teacher demo: baking soda and vinegar. List the evidence.	Let's Talk Science: Evidence of Chemical Change (teacher background): https://letstalkscience.ca/educational-resources/backgrounders/evidence-chemical-change
	<u>PART TWO</u> BODY OF LESSON Construct meaning, monitor understanding, process ideas How will I help students interact with ideas they encounter?	25/30 Minutes	• Sort change cards: physical or chemical, then reversible or not. • Partners justify with evidence on Activity 7. • Link: which physical changes did we see in Lesson 6?	Activity 7 - Physical or Chemical? Change Sort (printable) Let's Talk Science: States of Matter (teacher background): https://letstalkscience.ca/educational-resources/backgrounders/states-matter
	<u>PART THREE</u> CLOSURE OF LESSON Apply knowledge; reflect on thinking and learning How can I provide learners with alternative ways to demonstrate what they know?	5/10 Minutes	• Exit ticket (printable). • Find one physical change at home tonight.	Exit ticket handout (printable)

Exit Ticket

Lesson 7: Physical Changes All Around

5/6 Science - Matter and the Particle Model

Name: _____ Date: _____

1. Physical or chemical? cutting paper, baking a cake, freezing juice, rusting nail.

2. Name one physical change that is reversible and one that is not.

3. Is dissolving sugar in water a physical change? How could you prove it?

(Grade 6 / challenge)

Self-check: Today I can tell physical changes from chemical changes.

[] Yes, on my own [] Getting there [] I need more help

Activity 7: Physical or Chemical? Change Sort

Grade 5/6 Science - Matter and the Particle Model

Name: _____ Date: _____

Lesson 7 practice. Is a NEW substance made? Tick physical or chemical, then decide if it can be reversed.

Change	Physical	Chemical	Reversible? (yes/no)	Evidence
Cutting paper				
Freezing juice				
Burning a candle wick				
Melting butter				
Baking a cake				
Dissolving sugar in tea				
A nail rusting				
Breaking a pencil				
Boiling water				
Toast burning				

Signs of a chemical change (circle the ones you saw in the demo):

gas bubbles colour change heat or light a new solid forms smell

Grade 6 challenge: Is dissolving sugar a physical change? Describe a test to prove it.

Okanagan School of Education - LESSON PLAN TEMPLATE

Page One - Curriculum Connection/Pedagogical Plan

Candidate/Intern: Blake Clark

Lesson date:
TBD

Grade Level/Subject(s): 5/6 / Science

Lesson Title/Task Summary:

Lesson 8: Dissolving and Mixtures

Use particles to explain dissolving (Gr 5) and separate mixtures by density and particle size (Gr 6).

Core (Sub) Competency:

Critical & Reflective Thinking

Social Awareness & Responsibility

Unit Focus: Grade 5/6 Science - Matter and the Particle Model

Big Idea(s):

What will the students UNDERSTAND? What are the key question(s) to be addressed?

(Gr 5) Solutions are homogeneous. (Gr 6) Everyday materials are often mixtures.

Where do dissolved particles go, and how can we separate mixtures?

Curricular Competencies:

What will the students be able to DO? What skills are being taught? Are learning targets or "I can..." statements written in student-friendly language?

1. I can explain dissolving using the particle model.
2. I can separate a solution by evaporation (Gr 5).
3. I can separate a mixture by density or particle size (Gr 6).

Content:

What will the students KNOW? What content/concepts/key vocabulary will be the focus of this lesson?

1. Dissolving forms a solution; solubility of salt, sugar, sand, honey, CO₂ (Gr 5)
2. Heterogeneous mixtures; separating by settling, filtering, magnets (Gr 6)
3. First Peoples separation methods: eulachon oil (Gr 6)

Indigenous Perspectives:

How might "Indigenous knowledges and ways of knowing and being" be honoured and embedded authentically into the lesson?

1. Learning involves generational roles and responsibilities.
2. Learning ultimately supports the well-being of the self, the family, the community, the land, the spirits, and the ancestors.

Eulachon grease: fish are heated in water until the oil rises, then skimmed and strained (density and particle size).

Coastal Nations such as the Nuxalk and 'Namgis continue this practice.

Inclusive and Equitable Practice:

How is a safe and caring environment provided (emotional/physical)? Are there considerations for diverse interests/abilities? Are there access points for all learners and alternative ways to demonstrate what they know/can do? What grouping strategies are incorporated? Do students see themselves reflected in the learning?

1. Grade-based stations: Gr 5 dissolving and evaporation; Gr 6 separating mixtures.
2. Lab record sheet with sentence starters and labelled diagrams.

Collaborative Practice:

How might collaboration/co-planning/co-teaching be incorporated?

Shared with grade 5/6 partner classes.

Safety Considerations:

Are there any lesson and/or venue specific safety issues to be noted?

Goggles on. No tasting. Oil spills are slippery: wipe at once. Wash hands after.

Assessment Design

What type of assessment might be embedded in this lesson?

Formative Assessment: Assessment *for* Learning / **Summative Assessment:** Assessment *of* Learning.

Formative: printable exit ticket (particles and dissolving; choose a separation method).

Metacognition: How are students reflecting on and monitoring their own learning?

Why do you think eulachon grease was so valued, and traded so far?

Documentation/Evidence of Learning: How will student learning be documented and shared (learning maps, rubrics, math journals, online documentation, etc.)

Activity 8 lab records reviewed.

Okanagan School of Education - LESSON PLAN TEMPLATE

Page Two - Minute Minder

Considerations for lesson planning:		Estimated time	Teaching and Learning Activities What is the role of the teacher? What is the role of the students?	Teacher Preparation (Materials/resources or supplies needed)
CONNECT	PART ONE INTRODUCTION TO LESSON Activate Prior Knowledge, Engage, Predict, Focus How can I tap into students' interest, offer appropriate challenge, increase motivation?	5/10 Minutes	- Stir salt into water. Where did it go? Is it still there? How could we check? - PhET Sugar and Salt Solutions (Macro): shake in salt, evaporate water.	PhET: Sugar and Salt Solutions (Macro tab): https://phet.colorado.edu/en/simulations/sugar-and-salt-solutions
	PART TWO BODY OF LESSON Construct meaning, monitor understanding, process ideas How will I help students interact with ideas they encounter?	25/30 Minutes	- Gr 5 station: dissolve salt, sugar, sand; salt water on dark paper to dry (crystals). - Gr 6 station: separate sand and water (filter), oil and water (settle), iron and sand (magnet). - Share eulachon grease: heat, oil rises, skim, strain. Which properties?	Activity 8 - Mixture Lab Record (printable) uOttawa: How eulachon grease links generations, culture and cutting-edge science (teacher background): https://www.uottawa.ca/faculty-science/news-all/how-eulachon-grease-links-generations-culture-cutting-edge-science CBC: Nuxalk eulachon grease tradition (teacher background): https://www.cbc.ca/news/canada/british-columbia/bella-coola-eulachon-grease-project-revives-tradition-1.4722780 Let's Talk Science: What happens when we mix liquids? (adapt): https://letstalkscience.ca/educational-resources/hands-on-activities/what-happens-when-we-mix-liquids

TRANSFORM	<u>PART THREE</u> CLOSURE OF LESSON Apply knowledge; reflect on thinking and learning How can I provide learners with alternative ways to demonstrate what they know?	5/10 Minutes	• Exit ticket (printable). • Check the salt paper next period for crystals.	Exit ticket handout (printable)

Exit Ticket

Lesson 8: Dissolving and Mixtures

5/6 Science - Matter and the Particle Model

Name: _____ Date: _____

1. Salt "disappears" in water. Where are the salt particles?

2. How could you get the salt back from salt water?

3. Pick a method to separate sand and water, and name the property it uses.

(Grade 6)

Self-check: Today I can explain dissolving and separate a mixture.

☐ Yes, on my own ☐ Getting there ☐ I need more help

Activity 8: Mixture Lab Record

Grade 5/6 Science - Matter and the Particle Model

Name: _____ Date: _____

Lesson 8 lab. Goggles on. No tasting. Record carefully.

Part A (Grade 5 focus): Does it dissolve?

Stir into water	Prediction	Result: dissolves?	What I saw
Salt			
Sugar			
Sand			
Honey			

Draw salt water zoomed in. Show water particles and salt particles.

Salt water (zoomed in)	Salt paper after drying (what I see)

Part B (Grade 6 focus): Separate the mixture

Mixture	Method (filter, settle, magnet, evaporate)	Property used
Sand and water		
Oil and water		
Iron filings and sand		
Salt and water		

Eulachon grease: fish are heated in water, the oil rises, and it is skimmed and strained. Which two properties does this use?

Okanagan School of Education - LESSON PLAN TEMPLATE

Page One - Curriculum Connection/Pedagogical Plan

Candidate/Intern: Blake Clark

Lesson date:
TBD

Grade Level/Subject(s): 5/6 / Science

Lesson Title/Task Summary:

Lesson 9: Checkpoint Review 2 - Connecting the Ideas

Connect the whole unit in a concept map, practise for the concepts check, and plan the comic explainer.

Core (Sub) Competency:

Critical & Reflective Thinking

Personal Awareness & Responsibility

Unit Focus: Grade 5/6 Science - Matter and the Particle Model

Big Idea(s):

What will the students UNDERSTAND? What are the key question(s) to be addressed?

(Gr 5/6) The particle model explains states, changes, solutions, and mixtures.

How do all the unit ideas connect through the particle model?

Curricular Competencies:

What will the students be able to DO? What skills are being taught? Are learning targets or "I can..." statements written in student-friendly language?

1. I can connect particles, states, changes, and mixtures in a concept map.
2. I can answer practice questions from the whole unit.
3. I can plan a comic that explains a change with particles.

Content:

What will the students KNOW? What content/concepts/key vocabulary will be the focus of this lesson?

1. Review: Lessons 1 to 8 through the particle model
2. Self-assessment and goal setting (Gr 5/6 competency)
3. Key vocabulary: all unit terms

Indigenous Perspectives:

How might "Indigenous knowledges and ways of knowing and being" be honoured and embedded authentically into the lesson?

1. Learning is holistic, reflexive, reflective, experiential, and relational.
2. Learning involves patience and time.

A concept map shows how ideas connect, like the interconnectedness of all things on the land.

Inclusive and Equitable Practice:

How is a safe and caring environment provided (emotional/physical)? Are there considerations for diverse interests/abilities? Are there access points for all learners and alternative ways to demonstrate what they know/can do? What grouping strategies are incorporated? Do students see themselves reflected in the learning?

1. Concept map cards to arrange before writing links.
2. Reteach table for any exit-ticket gaps; extension: design a new separation challenge.

Collaborative Practice:

How might collaboration/co-planning/co-teaching be incorporated?

Shared with grade 5/6 partner classes.

Safety Considerations:

Are there any lesson and/or venue specific safety issues to be noted?

No lab hazards.

Assessment Design

What type of assessment might be embedded in this lesson?

Formative Assessment: Assessment for Learning / **Summative Assessment:** Assessment of Learning.

Formative: printable exit ticket, STW Matter Crossword, and I Can Tracker, second update.

Metacognition: How are students reflecting on and monitoring their own learning?

Which idea connects to the most other ideas? Why?

Documentation/Evidence of Learning: How will student learning be documented and shared (learning maps, rubrics, math journals, online documentation, etc.)

Practice results guide final support before Lesson 10.

Okanagan School of Education - LESSON PLAN TEMPLATE

Page Two - Minute Minder

Considerations for lesson planning:		Estimated time	Teaching and Learning Activities What is the role of the teacher? What is the role of the students?	Teacher Preparation (Materials/resources or supplies needed)
CONNECT	<u>PART ONE</u> INTRODUCTION TO LESSON Activate Prior Knowledge, Engage, Predict, Focus How can I tap into students' interest, offer appropriate challenge, increase motivation?	5/10 Minutes	- Mini whiteboard quick fire across all 8 lessons. - Return to the Matter Wonder Wall: which questions can we now answer?	Student I Can Tracker (printable)
	<u>PART TWO</u> BODY OF LESSON Construct meaning, monitor understanding, process ideas How will I help students interact with ideas they encounter?	25/30 Minutes	- Groups build a concept map from cards; draw linking arrows with reasons. - STW Matter Crossword: vocabulary review; self-mark with the key. - Choose a change and sketch comic panels (plan for Lesson 10).	STW: Matter Crossword (with answer key) Super Teacher Worksheets (member login): https://www.superteacherworksheets.com/matter.html Activity 10 - Particle Model Comic Explainer (preview the template) PhET: States of Matter: Basics (reteach): https://phet.colorado.edu/en/simulations/states-of-matter-basics
TRANSFORM	<u>PART THREE</u> CLOSURE OF LESSON Apply knowledge; reflect on thinking and learning How can I provide learners with alternative ways to demonstrate what they know?	5/10 Minutes	- Exit ticket (printable). - Update the I Can Tracker; set one goal for Lesson 10.	Exit ticket handout (printable)

Exit Ticket

Lesson 9: Checkpoint Review 2 - Connecting the Ideas

5/6 Science - Matter and the Particle Model

Name: _____ Date: _____

1. Draw one arrow from your concept map and explain the link.

2. Which change will your comic show? What happens to the particles?

3. Which unit idea do you still want to practise?

Self-check: Today I can connect the big ideas of the unit.

☐ Yes, on my own ☐ Getting there ☐ I need more help

Okanagan School of Education - LESSON PLAN TEMPLATE

Page One - Curriculum Connection/Pedagogical Plan

Candidate/Intern: Blake Clark

Lesson date:
TBD

Grade Level/Subject(s): 5/6 / Science

Lesson Title/Task Summary:

Lesson 10: Show What You Know

Summative: create a Particle Model Comic Explainer and complete the End of Unit Concepts Check.

Core (Sub) Competency:

Communicating

Creative Thinking

Unit Focus: Grade 5/6 Science - Matter and the Particle Model

Big Idea(s):

What will the students UNDERSTAND? What are the key question(s) to be addressed?

(Gr 5/6) The particle model explains what matter is like and how it changes.

Can I use the particle model to explain a real change?

Curricular Competencies:

What will the students be able to DO? What skills are being taught? Are learning targets or "I can..." statements written in student-friendly language?

1. I can explain a change using zoomed-in particle drawings.
2. I can use unit vocabulary correctly.
3. I can answer: is air matter? with particle evidence.

Content:

What will the students KNOW? What content/concepts/key vocabulary will be the focus of this lesson?

1. All unit content: matter, states, changes, dissolving, mixtures
2. Communicate ideas, explanations, and processes in a variety of ways (competency)
3. Key vocabulary: all unit terms

Indigenous Perspectives:

How might "Indigenous knowledges and ways of knowing and being" be honoured and embedded authentically into the lesson?

1. Learning is embedded in memory, history, and story.
2. Learning involves generational roles and responsibilities.

A comic tells a science story, and story is a long-standing way First Peoples pass on knowledge.

Inclusive and Equitable Practice:

How is a safe and caring environment provided (emotional/physical)? Are there considerations for diverse interests/abilities? Are there access points for all learners and alternative ways to demonstrate what they know/can do? What grouping strategies are incorporated? Do students see themselves reflected in the learning?

1. Comic template with panel prompts; students may label, draw, or dictate captions.
2. Concepts Check read aloud on request; Gr 6 section on mixtures.

Collaborative Practice:

How might collaboration/co-planning/co-teaching be incorporated?

Shared with grade 5/6 partner classes.

Safety Considerations:

Are there any lesson and/or venue specific safety issues to be noted?

No lab hazards.

Assessment Design

What type of assessment might be embedded in this lesson?

Formative Assessment: Assessment for Learning / **Summative Assessment:** Assessment of Learning.

Summative: Particle Model Comic Explainer and End of Unit Concepts Check, assessed with the unit rubric. Dates: TBD.

Metacognition: How are students reflecting on and monitoring their own learning?

What is the most important thing the particle model helped you understand?

Documentation/Evidence of Learning: How will student learning be documented and shared (learning maps, rubrics, math journals, online documentation, etc.)

Rubric, Concepts Check (answer key), and final I Can Tracker kept as evidence.

Okanagan School of Education - LESSON PLAN TEMPLATE

Page Two - Minute Minder

Considerations for lesson planning:		Estimated time	Teaching and Learning Activities What is the role of the teacher? What is the role of the students?	Teacher Preparation (Materials/resources or supplies needed)
CONNECT	<u>PART ONE</u> INTRODUCTION TO LESSON Activate Prior Knowledge, Engage, Predict, Focus How can I tap into students' interest, offer appropriate challenge, increase motivation?	5/10 Minutes	- Revisit: Is air matter? Answer now with particles. - Review rubric criteria together.	Unit Rubric (printable)
	<u>PART TWO</u> BODY OF LESSON Construct meaning, monitor understanding, process ideas How will I help students interact with ideas they encounter?	25/30 Minutes	- Particle Model Comic Explainer: 4 panels, zoomed-in particle views and captions. - End of Unit Concepts Check (about 15 min).	Activity 10 - Particle Model Comic Explainer (printable) Optional extension: STW States of Matter Project (booklet + grading sheet) End of Unit Concepts Check and ANSWER KEY (printable)
TRANSFORM	<u>PART THREE</u> CLOSURE OF LESSON Apply knowledge; reflect on thinking and learning How can I provide learners with alternative ways to demonstrate what they know?	5/10 Minutes	- Gallery walk: one strength for a classmate comic. - Final I Can Tracker update.	Exit ticket handout (printable) Student I Can Tracker (printable)

Exit Ticket

Lesson 10: Show What You Know

5/6 Science - Matter and the Particle Model

Name: _____ Date: _____

1. Is air matter? Answer with particle evidence.

2. What is one thing you are proud of in your comic?

3. What is one new question you have about matter?

(Grade 6 / challenge: explain why)

Self-check: Today I can use the particle model to explain a change.

☐ Yes, on my own ☐ Getting there ☐ I need more help

Activity 10: Particle Model Comic Explainer

Grade 5/6 Science - Matter and the Particle Model

Name: _____ Date: _____

Lesson 10 summative. Choose one change: an ice pop melting, a puddle drying, salt dissolving, fog on a mirror, or eulachon oil rising (Gr 6). Show it in 4 panels. Each panel needs a picture, a zoomed-in particle circle, and a caption.

My change: _____

Panel 1 Caption: _____	Panel 2 Caption: _____
Panel 3 Caption: _____	Panel 4 Caption: _____

Checklist:

- [] I showed particles before and after the change.
- [] I used at least 3 unit words (particle, melt, dissolve, evaporate ...).
- [] I said whether the change is physical and whether it is reversible.

Unit Rubric: Matter and the Particle Model

Grade 5/6 Science - Matter and the Particle Model

Assessed on the Particle Model Comic Explainer, the End of Unit Concepts Check, and lesson evidence. Grade 5 focus on states, changes, and dissolving; Grade 6 also on mixtures and separation. Tied to the BC curricular competencies.

Name: _____ Grade (circle): 5 6

Criteria	Emerging	Developing	Proficient	Extending
Matter and properties	Unsure what matter is.	Defines matter; names some properties.	Explains mass and space; describes matter with several properties.	Uses properties to identify or plan to separate materials.
States and the particle model	Confuses the states.	Names states; particle drawings partly correct.	Draws and explains particles in each state (spacing, movement).	Uses the model to explain new situations (compressing gas, smells).
Changes of state and physical change	Cannot name changes.	Names some changes; explanation is general.	Names all four changes; explains with particles; notes reversibility.	Clearly tells physical from chemical change with evidence.
Dissolving and solutions (Gr 5)	Thinks dissolved matter is gone.	Knows it is still there; limited explanation.	Explains dissolving with particles; separates by evaporation.	Explains solubility of solids, liquids, and gases with examples.
Mixtures and separation (Gr 6)	Cannot suggest a method.	Suggests a method; property unclear.	Matches methods to density or particle size.	Connects methods to real uses, including eulachon oil.
Communicating (comic explainer)	Ideas unclear or missing.	Some panels explain the change.	Clear panels, particle views, and correct vocabulary.	Engaging, accurate, and complete science story.

Teacher comment:

Student I Can Tracker

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Tick a box for each goal: Not yet, Getting there, or Yes. Update it at each Checkpoint Review (Lessons 5 and 9) and at the end.

Name: _____ Date: _____

Lesson	I can ...	Not yet	Getting there	Yes
Lesson 1	I can explain that matter has mass and takes up space.			
Lesson 2	I can describe matter using physical properties.			
Lesson 3	I can tell solids, liquids, and gases apart.			
Lesson 4	I can explain and draw the particle model.			
Lesson 5	I can review what I know and name what to practise.			
Lesson 6	I can explain melting, freezing, evaporation, and condensation.			
Lesson 7	I can tell physical changes from chemical changes.			
Lesson 8	I can explain dissolving and separate a mixture.			
Lesson 9	I can connect the big ideas of the unit.			
Lesson 10	I can use the particle model to explain a change.			

One thing I am proud of:

One thing I want to work on next:

Teacher Observation Checklist

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Formative, anecdotal evidence across the unit. Code each box: E = emerging, D = developing, P = proficient, X = extending. Use it to form Checkpoint Review groups.

Class: _____ Dates: TBD

Student	Defines matter	Uses properties	Particle model	Changes of state	Dissolving / mixtures	Uses safe lab habits

Anecdotal notes:

End of Unit Concepts Check

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Name: _____ Grade (circle): 5 6

Grade 5: complete Parts A and B. Grade 6: complete Parts A, B, and C. About 15 to 20 minutes. Questions may be read aloud on request.

Part A: Multiple choice (circle one)

1. Which of these is NOT matter?

- a. air b. water c. light d. sand

2. Which state has a fixed shape and a fixed volume?

- a. solid b. liquid c. gas d. all of them

3. When a liquid is heated, its particles ...

- a. stop moving b. move faster c. get smaller d. disappear

4. Water vapour turning into droplets on a cold mirror is ...

- a. melting b. freezing c. evaporation d. condensation

5. Which is a chemical change?

- a. melting ice b. cutting paper c. baking a cake d. dissolving salt

6. When salt dissolves in water, the salt particles ...

- a. are destroyed b. spread out among the water particles c. turn into water d. sink and stay in a pile

Part B: Short answer

7. Draw the particles in a solid, a liquid, and a gas. Label each.

8. Is air matter? Give one piece of evidence.

9. Explain what happens to particles when ice melts. Is this change reversible?

10. How could you get salt back from salt water? Name the process.

Part C: Grade 6 (mixtures and separation)

11. Choose a method to separate sand from water. Name the property it uses.

12. Oil and water are mixed. How could you separate them, and why does it work?

13. Eulachon grease is made by heating fish in water until the oil rises, then skimming and straining it. Which properties are used?

End of Unit Concepts Check - ANSWER KEY

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Grade 5: complete Parts A and B. Grade 6: complete Parts A, B, and C. About 15 to 20 minutes. Questions may be read aloud on request.

Part A: Multiple choice (circle one)

1. Which of these is NOT matter?

- a. air b. water c. light d. sand

Answer: c

2. Which state has a fixed shape and a fixed volume?

- a. solid b. liquid c. gas d. all of them

Answer: a

3. When a liquid is heated, its particles ...

- a. stop moving b. move faster c. get smaller d. disappear

Answer: b

4. Water vapour turning into droplets on a cold mirror is ...

- a. melting b. freezing c. evaporation d. condensation

Answer: d

5. Which is a chemical change?

- a. melting ice b. cutting paper c. baking a cake d. dissolving salt

Answer: c

6. When salt dissolves in water, the salt particles ...

- a. are destroyed b. spread out among the water particles c. turn into water d. sink and stay in a pile

Answer: b

Part B: Short answer

7. Draw the particles in a solid, a liquid, and a gas. Label each.

Solid: tightly packed, ordered, vibrating. Liquid: close but random, sliding. Gas: far apart, moving fast in all directions.

8. Is air matter? Give one piece of evidence.

Yes. It has mass (inflated balloon is heavier) and takes up space (paper towel stays dry in the upside-down cup).

9. Explain what happens to particles when ice melts. Is this change reversible?

Heat makes the particles move faster; they break out of fixed positions and slide past each other. Yes, it is reversible (freeze it again).

10. How could you get salt back from salt water? Name the process.

Let the water evaporate (heat or leave it in the sun); salt crystals are left behind. Evaporation / crystallization.

Part C: Grade 6 (mixtures and separation)

11. Choose a method to separate sand from water. Name the property it uses.

Filter it (particle size), or let it settle and pour off the water (density).

12. Oil and water are mixed. How could you separate them, and why does it work?

Let it settle; oil floats on top because it is less dense. Skim or pour off the oil.

13. Eulachon grease is made by heating fish in water until the oil rises, then skimming and straining it. Which properties are used?

Density (oil rises and is skimmed) and particle size (straining removes solid bits).

Scoring guide: Part A 1 mark each (6). Part B 2 marks each (8). Part C 2 marks each (6). Grade 5 out of 14; Grade 6 out of 20. Use with the unit rubric, not as a sole grade.