Nov. Grade 2 Unit 2 : Matter

Content Area: **Science**
Course(s):
Time Period: **November**
Length: **6-8 Weeks**
Status: **Published**

Unit Overview

In this unit, children will:

- describe and classify materials by their observable properties;
- select and use materials based on these properties;
- use evidence to describe how heating and cooling cause changes to matter;
- use evidence to describe reversible and irreversible changes to matter;
- explore how an object can be taken apart and its pieces used to make another object

Enduring Understandings

Heating and cooling causes change in matter.

Some changes are reversable, some are not.

Objects can be taken apart and made into other objects.

Essential Questions

What is matter?

How can we change matter into different forms?

Instructional Strategies & Learning Activities

- Unit 2: Matter

  Teacher eBook

  Matter: Unit Opener

  The Unit Opener introduces the unit "Matter" and the unit project, Explore Melting.

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Unit 2: Matter

Assessment Guide

Matter: Unit Pretest

The Unit Pretest for "Matter" focuses on prerequisite knowledge. The test is composed primarily of DOK 1 items that evaluate student preparedness for the upcoming content.

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  Unit 2: Matter

  Online Assessment

  Matter: Unit Pretest

  The interactive Unit Pretest for "Matter" focuses on prerequisite knowledge. The test is composed primarily of DOK 1 items that evaluate student preparedness for the upcoming content.

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  Unit 2: Matter

  Teacher Edition

  Matter: Unit Opener

  The Unit Opener introduces the unit "Matter" and the unit project, Explore Melting.

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  Unit 2: Matter

  Student Edition

  Matter: Unit Opener

  The Unit Opener for "Matter" introduces the unit project, Explore Melting. During this unit project, children will:
  - Explore the fastest way to cause ice to change to water by planning and conducting an investigation.
  - Collect data to use as evidence to answer a question.
  - Construct an argument using evidence to support a claim.

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  Unit 2: Matter

  Teacher Edition

  Matter: Integrating the NGSS* Three Dimensions of Learning

This section details the Performance Expectations covered in the unit "Matter."

- Unit 2: Matter

  Assessment Guide

  Matter: Unit Test

  The Unit Test for "Matter" assesses students' ability to apply knowledge to solve problems and explain phenomena in relation to the Performance Expectations associated with the unit. In this unit, children:
  - describe and classify materials by their observable properties;
  - select and use materials based on these properties;
  - use evidence to describe how heating and cooling cause changes to matter;
  - use evidence to describe reversible and irreversible changes to matter;
  - explore how an object can be taken apart and its pieces used to make another object.

- Unit 2: Matter

  Teacher Edition

  Matter: Differentiate Instruction

  This page provides differentiated support for this unit's Science & Engineering Leveled Readers, "What Can We Learn About Matter?" and "Making Coins."

- Unit 2: Matter

  Teacher Edition

  Matter: Unit Project: Explore Melting

  During the unit project "Explore Melting," children will:
  - Explore the fastest way to cause ice to change to water by planning and conducting an investigation.
  - Collect data to use as evidence to answer a question.
  - Construct an argument using evidence to support a claim.

- Unit 2: Matter

  Student eBook

  Matter: Unit Opener

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investigation.
    - Collect data to use as evidence to answer a question.
    - Construct an argument using evidence to support a claim.

- Unit 2: Matter

  Teacher eBook

  Matter: Unit Project: Explore Melting

  During the unit project "Explore Melting," children will:
    - Explore the fastest way to cause ice to change to water by planning and conducting an investigation.
    - Collect data to use as evidence to answer a question.
    - Construct an argument using evidence to support a claim.

- Unit 2: Matter

  Home Letter

  Matter: Home Letter

  This is the home letter for the unit "Matter."

- Unit 2: Matter

  Assessment Guide

  Matter: Unit Pretest (Editable)

  The Unit Pretest for "Matter" focuses on prerequisite knowledge. The test is composed primarily of DOK 1 items that evaluate student preparedness for the upcoming content.

- Unit 2: Matter

  Online Assessment

  Matter: Unit Test

  The interactive Unit Test for "Matter" assesses students' ability to apply knowledge to solve problems and explain phenomena in relation to the Performance Expectations associated with the unit. In this unit, children:
    - describe and classify materials by their observable properties;
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- explore how an object can be taken apart and its pieces used to make another object.

- Unit 2: Matter

  Teacher Edition

  Matter: Unit At a Glance

  Unit at a Glance for "Matter" includes the unit table of contents, unit vocabulary words, and the vocabulary game, Make a Match. In this unit, children will:
  - describe and classify materials by their observable properties;
  - select and use materials based on these properties;
  - use evidence to describe how heating and cooling cause changes to matter;
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  - Unit 2: Matter

    Student Edition

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  - Unit 2: Matter

    Teacher Edition

    Matter: 3D Unit Planning

    Planning resources are available for each lesson and hands-on activity in the unit "Matter."

  - Unit 2: Matter

    Assessment Guide

    Matter: Unit Test (Editable)

    The Unit Test for "Matter" assesses students' ability to apply knowledge to solve problems and explain phenomena in relation to the Performance Expectations associated with the unit. In this

unit, children:

- describe and classify materials by their observable properties;
- select and use materials based on these properties;
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Unit 2: Matter

Teacher Edition

Matter: Connecting with NGSS

These opportunities for informal science learning provide local context and extend and enhance concepts from the unit "Matter."

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Unit 2: Matter

Leveled Readers - Red

Extra-Support: What Can We Learn About Matter?

The leveled reader "What Can We Learn About Matter?" is designed for below-level readers and can be used to reinforce key concepts from the unit "Matter."

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Unit 2: Matter

You Solve It

Changes to Matter (Teacher)

Teacher support materials are available for "Changes to Matter." During this activity, students will recognize observable patterns that are generated when matter is changed. They then use evidence to support a claim that some changes to matter caused by heating or cooling are reversible and others are irreversible.

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Unit 2: Matter

Teacher Edition

Matter: Unit Performance Task: Engineer It - Build a Model Boat

During the Performance Task "Engineer It - Build a Model Boat," children will design tests and analyze data to determine which materials have properties best suited to their model boat.

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Unit 2: Matter

Teacher eBook

Matter: Unit Performance Task: Engineer It - Build a Model Boat

During the Performance Task "Engineer It - Build a Model Boat," children will design tests and analyze data to determine which materials have properties best suited to their model boat.

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Unit 2: Matter

You Solve It

Changes to Matter

The Changes to Matter activity allows students to recognize observable patterns that are generated when matter is changed. They then use evidence to support a claim that some changes to matter caused by heating or cooling are reversible and others are irreversible.

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Unit 2: Matter

Unit Project Worksheet

Matter: Unit Project: Explore Melting (Editable)

This is the editable Unit Project worksheet for "Explore Melting." During this project, children will:

- Explore the fastest way to cause ice to change to water by planning and conducting an investigation.
- Collect data to use as evidence to answer a question.
- Construct an argument using evidence to support a claim.

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Unit 2: Matter

Student Edition

Matter: Unit Review

The Unit Review assesses student understanding of key ideas and concepts from the unit "Matter."

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Unit 2: Matter

Unit Project Worksheet

Matter: Unit Project: Explore Melting

This is the Unit Project worksheet for "Explore Melting." During this project, children will:

- Explore the fastest way to cause ice to change to water by planning and conducting an investigation.
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Unit 2: Matter

Student eBook

Matter: Unit Performance Task: Engineer It - Build a Model Boat

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Unit 2: Matter

Unit Performance Task Worksheet

Matter: Unit Performance Task: Engineer It - Build a Model Boat (Editable)

This is the editable Unit Performance Task worksheet for "Engineer It - Build a Model Boat." During this task, children will design tests and analyze data to determine which materials have properties best suited to their model boat.

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Unit 2: Matter

Teacher Edition

Matter: Unit Review

The Unit Review assesses student understanding of key ideas and concepts from the unit "Matter."

- Unit 2: Matter

  Leveled Readers - Green

  Enrichment: Making Coins

  The leveled reader "Making Coins" is designed for above-level readers and can be used to extend key concepts from the unit "Matter."

- Unit 2: Matter

  Unit Performance Task Worksheet

  Matter: Unit Performance Task: Engineer It - Build a Model Boat

  This is the Unit Performance Task worksheet for "Engineer It - Build a Model Boat." During this task, children will design tests and analyze data to determine which materials have properties best suited to their model boat.

- Unit 2: Matter

  Teacher eBook

  Matter: Unit Review

  The Unit Review assesses student understanding of key ideas and concepts from the unit "Matter."

- Unit 2: Matter

  Student Edition

  Matter: Unit Performance Task: Engineer It - Build a Model Boat

  During the Performance Task "Engineer It - Build a Model Boat," children will design tests and analyze data to determine which materials have properties best suited to their model boat.

- Unit 2: Matter

  Leveled Readers Teacher's Guide

  Topic 3: Changes in Matter

  The Leveled Readers Teachers Guide provides teaching strategies and support (as well as reproducible English and Spanish worksheets) for the Unit 2 readers "What Can We Learn About Matter?" and "Making Coins." On-Level and Extra-Support worksheets focus on vocabulary development, while Enrichment worksheets reinforce and enrich content.

- Unit 2: Matter

  Student eBook

Matter: Unit Review

The Unit Review assesses student understanding of key ideas and concepts from the unit "Matter."

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Unit 2: Matter

Leveled Readers - Blue

On-Level: What Can We Learn About Matter?

The leveled reader "What Can We Learn About Matter?" is designed for on-level readers and can be used to enrich key concepts from the unit "Matter."

Integration of 21st Century Themes and Career Exploration

CRP.K-12.CRP1	Act as a responsible and contributing citizen and employee.
CRP.K-12.CRP2	Apply appropriate academic and technical skills.
CRP.K-12.CRP4	Communicate clearly and effectively and with reason.
CRP.K-12.CRP5	Consider the environmental, social and economic impacts of decisions.
CRP.K-12.CRP6	Demonstrate creativity and innovation.
CRP.K-12.CRP7	Employ valid and reliable research strategies.
CRP.K-12.CRP8	Utilize critical thinking to make sense of problems and persevere in solving them.
CRP.K-12.CRP9	Model integrity, ethical leadership and effective management.
CRP.K-12.CRP12	Work productively in teams while using cultural global competence.

Technology Integration

Students will interact with the SmartBoard, Ipads, chromebooks, and document camera.

TECH.8.1.2	Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.
TECH.8.1.2.A.CS1	Understand and use technology systems.
TECH.8.1.2.B	Creativity and Innovation: Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.
TECH.8.1.2.C	Communication and Collaboration: Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual

	learning and contribute to the learning of others.
TECH.8.1.2.E.CS1	Plan strategies to guide inquiry
TECH.8.1.2.F	Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.
TECH.8.1.2.F.CS1	Identify and define authentic problems and significant questions for investigation.

Interdisciplinary Connections

LA.RI.2	Reading Informational Text
LA.RI.2.1	Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.
LA.RI.2.2	Identify the main topic of a multiparagraph text as well as the focus of specific paragraphs within the text.
LA.RI.2.3	Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.
LA.RI.2.4	Determine the meaning of words and phrases in a text relevant to a grade 2 topic or subject area.
LA.RI.2.5	Know and use various text features (e.g., captions, bold print, subheadings, glossaries, indexes, electronic menus, icons) to locate key facts or information in a text efficiently.
LA.RI.2.6	Identify the main purpose of a text, including what the author wants to answer, explain, or describe.
LA.RI.2.7	Explain how specific illustrations and images (e.g., a diagram showing how a machine works) contribute to and clarify a text.
LA.RI.2.8	Describe and identify the logical connections of how reasons support specific points the author makes in a text.
LA.RI.2.9	Compare and contrast the most important points presented by two texts on the same topic.
LA.RI.2.10	Read and comprehend informational texts, including history/social studies, science, and technical texts, at grade level text complexity proficiently with scaffolding as needed.

Differentiation

- Understand that gifted students, just like all students, come to school to learn and be challenged.
- Pre-assess your students. Find out their areas of strength as well as those areas you may need to address before students move on.
- Consider grouping gifted students together for at least part of the school day.
- Plan for differentiation. Consider pre-assessments, extension activities, and compacting the curriculum.
- Use phrases like "You've shown you don't need more practice" or "You need more practice" instead of words like "qualify" or "eligible" when referring to extension work.
- Encourage high-ability students to take on challenges. Because they're often used to getting good grades, gifted students may be risk averse.

- **Definitions of Differentiation Components**:

    - Content – the specific information that is to be taught in the lesson/unit/course of instruction.
    - Process – how the student will acquire the content information.

- Product – how the student will demonstrate understanding of the content.
- Learning Environment – the environment where learning is taking place including physical location and/or student grouping

Differentiation occurring in this unit:

See differentiation strategies suggested in the teacher's manual for struggling or advianced students.

Modifications & Accommodations

Refer to QSAC EXCEL SMALL SPED ACCOMMOCATIONS spreadsheet in this discipline.

Modifications and Accommodations used in this unit:

IEP and 504 plans will be utilized.

Benchmark Assessments

Benchmark Assessments are given periodically (e.g., at the end of every quarter or as frequently as once per month) throughout a school year to establish baseline achievement data and measure progress toward a standard or set of academic standards and goals.

Schoolwide Benchmark assessments:

Aimsweb benchmarks 3X a year

Linkit Benchmarks 3X a year

DRA

Additional Benchmarks used in this unit:

DRA

AIMSweb

Formative Assessments

- Assessment allows both instructor and student to monitor progress towards achieving learning objectives, and can be approached in a variety of ways. **Formative assessment** refers to tools that identify misconceptions, struggles, and learning gaps along the way and assess how to close those gaps. It includes effective tools for helping to shape learning, and can even bolster students' abilities to take ownership of their learning when they understand that the goal is to improve learning, not apply final marks (Trumbull and Lash, 2013). It can include students assessing themselves, peers, or even the instructor, through writing, quizzes, conversation, and more. In short, formative assessment occurs throughout a class or course, and seeks to improve student achievement of learning objectives through approaches that can support specific student needs (Theal and Franklin, 2010, p. 151).

  Formative Assessments used in this unit:

- Teacher observation
- Questioning
- Whiteboard Response
- Think-Pair Share
- Classroom discussion
- Workbook pages
- Writing/Performance rubrics included in lesson

Pretest

Summative Assessments

summative assessments evaluate student learning, knowledge, proficiency, or success at the conclusion of an instructional period, like a unit, course, or program. Summative assessments are almost always formally graded and often heavily weighted (though they do not need to be). Summative assessment can be used to great effect in conjunction and alignment with formative assessment, and instructors can consider a variety of ways to combine these approaches.

Summative assessments for this unit:

Unit Test

Performance Task

Instructional Materials

HMH Science Dimensions teaching materials

Various hands on materials for labs

Leveled Readers

Standards

	Examples of properties could include, strength, flexibility, hardness, texture, and absorbency.
PS1.A	Structure and Properties of Matter
	Different properties are suited to different purposes.
2-PS1-4	Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.