

The Common Core English Language Arts Standards (CCELA)

CHAPTER 5, LESSON 1: WATER IS A POLAR MOLECULE

Reading Standards for Literacy in Science and Technical Subjects 6-8

LITERACY.RST.6-8.3

Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

LITERACY.RST.6-8.4

Determine the meaning of symbols, key terms and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.

LITERACY.RST.6-8.7

Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

Students use the Activity Sheet to read and follow a multistep procedure to discover whether water or isopropyl alcohol evaporates more quickly from a paper towel. Students read the questions and information on the Activity Sheet and apply them to their observations to learn the meaning of words related to covalent bonding, attractions, polar molecules, and evaporation at the molecular level. Students also integrate information from text with molecular models to improve their understanding.

Writing Standards for Literacy in Science and Technical Subjects 6-8

LITERACY.WHST.6-8.1

Write arguments focused on discipline-specific content

- a. Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim (s) from alternate or opposing claims, and organize the reasons and evidence logically.
- b. Support claim(s) with logical reasoning and relevant accurate data and evidence that demonstrate an understanding of the topic or text using credible sources.
- c. Use words, phrases, and clauses to create cohesion and clarify the relationship

among claim(s), counterclaims, reasons, and evidence.

d. Establish and maintain a formal style.

e. Provide a concluding statement or section that follows from and supports the argument presented.

Students use the Activity Sheet to write answers to questions about their observations. Students also describe how the molecular model illustrations and animations from the lesson relate to their observations. Students apply reasoning from the molecular models to evidence from their observations to make and support a claim that answers the Question to Investigate about whether water or isopropyl alcohol evaporate more quickly from a paper towel.

The Common Core English Language Arts Standards (CCELA)

CHAPTER 5, LESSON 2: SURFACE TENSION

Reading Standards for Literacy in Science and Technical Subjects 6-8

LITERACY.RST.6-8.3

Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

LITERACY.RST.6-8.4

Determine the meaning of symbols, key terms and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.

LITERACY.RST.6-8.7

Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

Students use the Activity Sheet to read and follow a multistep procedure to discover whether water or isopropyl alcohol has a stronger surface tension. Students read the questions and information on the Activity Sheet and apply them to their observations to learn the meaning of words related to polarity, water molecule, attractions, and surface tension at the molecular level. Students also integrate information from text with molecular models to improve their understanding.

Writing Standards for Literacy in Science and Technical Subjects 6-8

LITERACY.WHST.6-8.1

Write arguments focused on discipline-specific content

- a. Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim (s) from alternate or opposing claims, and organize the reasons and evidence logically.
- b. Support claim(s) with logical reasoning and relevant accurate data and evidence that demonstrate an understanding of the topic or text using credible sources.

- c. Use words, phrases, and clauses to create cohesion and clarify the relationship among claim(s), counterclaims, reasons, and evidence.
- d. Establish and maintain a formal style.
- e. Provide a concluding statement or section that follows from and supports the argument presented.

Students use the Activity Sheet to write answers to questions about their observations. Students also describe how the molecular model illustrations and animations from the lesson relate to their observations. Students apply reasoning from the molecular models to evidence from their observations to make and support a claim that answers the Question to Investigate about whether water or isopropyl alcohol has a stronger surface tension.

The Common Core English Language Arts Standards (CCELA)

CHAPTER 5, LESSON 3: WHY DOES WATER DISSOLVE SALT?

Reading Standards for Literacy in Science and Technical Subjects 6-8

LITERACY.RST.6-8.3

Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

LITERACY.RST.6-8.4

Determine the meaning of symbols, key terms and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.

LITERACY.RST.6-8.7

Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

Students use the Activity Sheet to read and follow a multistep procedure to discover why water can dissolve salt. Students read the questions and information on the Activity Sheet and apply them to their observations to learn the meaning of words related to solute, solvent, ion and dissolving at the molecular level. Students also integrate information from text with molecular models to improve their understanding.

Writing Standards for Literacy in Science and Technical Subjects 6-8

LITERACY.WHST.6-8.1

Write arguments focused on discipline-specific content

- a. Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim (s) from alternate or opposing claims, and organize the reasons and evidence logically.
- b. Support claim(s) with logical reasoning and relevant accurate data and evidence that demonstrate an understanding of the topic or text using credible sources.
- c. Use words, phrases, and clauses to create cohesion and clarify the relationship

among claim(s), counterclaims, reasons, and evidence.

d. Establish and maintain a formal style.

e. Provide a concluding statement or section that follows from and supports the argument presented.

Students use the Activity Sheet to write answers to questions about their observations. Students also describe how the molecular model illustrations and animations from the lesson relate to their observations. Students apply reasoning from the molecular models to evidence from their observations to make and support a claim that answers the Question to Investigate about why water can dissolve salt.

The Common Core English Language Arts Standards (CCELA)

CHAPTER 5, LESSON 4: WHY DOES WATER DISSOLVE SUGAR?

Reading Standards for Literacy in Science and Technical Subjects 6-8

LITERACY.RST.6-8.3

Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

LITERACY.RST.6-8.4

Determine the meaning of symbols, key terms and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.

LITERACY.RST.6-8.7

Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

Students use the Activity Sheet to read and follow a multistep procedure to discover why water can dissolve sugar. Students read the questions and information on the Activity Sheet and apply them to their observations to learn the meaning of words related to polarity, attractions, and dissolving at the molecular level. Students also integrate information from text with molecular models to improve their understanding.

Writing Standards for Literacy in Science and Technical Subjects 6-8

LITERACY.WHST.6-8.1

Write arguments focused on discipline-specific content

- a. Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim (s) from alternate or opposing claims, and organize the reasons and evidence logically.
- b. Support claim(s) with logical reasoning and relevant accurate data and evidence that demonstrate an understanding of the topic or text using credible sources.
- c. Use words, phrases, and clauses to create cohesion and clarify the relationship

among claim(s), counterclaims, reasons, and evidence.

d. Establish and maintain a formal style.

e. Provide a concluding statement or section that follows from and supports the argument presented.

Students use the Activity Sheet to write answers to questions about their observations. Students also describe how the molecular model illustrations and animations from the lesson relate to their observations. Students apply reasoning from the molecular models to evidence from their observations to make and support a claim that answers the Question to Investigate about why water can dissolve sugar.

The Common Core English Language Arts Standards (CCELA)

CHAPTER 5, LESSON 5: USING DISSOLVING TO IDENTIFY AN UNKNOWN

Reading Standards for Literacy in Science and Technical Subjects 6-8

LITERACY.RST.6-8.3

Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

LITERACY.RST.6-8.4

Determine the meaning of symbols, key terms and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.

LITERACY.RST.6-8.7

Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

Students use the Activity Sheet to read and follow a multistep procedure to discover whether a solubility test can be used to identify an unknown. Students read the questions and information on the Activity Sheet and apply them to their observations to learn the meaning of words related to variable, control, and solubility at the molecular level. Students also integrate information from text with molecular models to improve their understanding.

Writing Standards for Literacy in Science and Technical Subjects 6-8

LITERACY.WHST.6-8.1

Write arguments focused on discipline-specific content

- a. Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim (s) from alternate or opposing claims, and organize the reasons and evidence logically.
- b. Support claim(s) with logical reasoning and relevant accurate data and evidence that demonstrate an understanding of the topic or text using credible sources.
- c. Use words, phrases, and clauses to create cohesion and clarify the relationship

among claim(s), counterclaims, reasons, and evidence.

d. Establish and maintain a formal style.

e. Provide a concluding statement or section that follows from and supports the argument presented.

Students use the Activity Sheet to write answers to questions about their observations. Students also describe how the molecular model illustrations and animations from the lesson relate to their observations. Students apply reasoning from the molecular models to evidence from their observations to make and support a claim that answers the Question to Investigate about whether a solubility test can be used to identify an unknown.

The Common Core English Language Arts Standards (CCELA)

CHAPTER 5, LESSON 6: DOES TEMPERATURE AFFECT DISSOLVING?

Reading Standards for Literacy in Science and Technical Subjects 6-8

LITERACY.RST.6-8.3

Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

LITERACY.RST.6-8.4

Determine the meaning of symbols, key terms and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.

LITERACY.RST.6-8.7

Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

Students use the Activity Sheet to read and follow a multistep procedure to discover whether temperature affects the amount of coating that dissolves from an M&M. Students read the questions and information on the Activity Sheet and apply them to their observations to learn the meaning of words related to heat, molecular motion, attractions, and dissolving at the molecular level. Students also integrate information from text with molecular models to improve their understanding.

Writing Standards for Literacy in Science and Technical Subjects 6-8

LITERACY.WHST.6-8.1

Write arguments focused on discipline-specific content

- a. Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim (s) from alternate or opposing claims, and organize the reasons and evidence logically.
- b. Support claim(s) with logical reasoning and relevant accurate data and evidence that demonstrate an understanding of the topic or text using credible sources.
- c. Use words, phrases, and clauses to create cohesion and clarify the relationship

among claim(s), counterclaims, reasons, and evidence.

d. Establish and maintain a formal style.

e. Provide a concluding statement or section that follows from and supports the argument presented.

Students use the Activity Sheet to write answers to questions about their observations. Students also describe how the molecular model illustrations and animations from the lesson relate to their observations. Students apply reasoning from the molecular models to evidence from their observations to make and support a claim that answers the Question to Investigate about whether the temperature of water affects the amount of coating that dissolves from an M&M.

The Common Core English Language Arts Standards (CCELA)

CHAPTER 5, LESSON 7: CAN LIQUIDS DISSOLVE IN WATER?

Reading Standards for Literacy in Science and Technical Subjects 6-8

LITERACY.RST.6-8.3

Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

LITERACY.RST.6-8.4

Determine the meaning of symbols, key terms and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.

LITERACY.RST.6-8.7

Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

Students use the Activity Sheet to read and follow a multistep procedure to see whether isopropyl alcohol, mineral oil, and corn syrup can dissolve in water. Students read the questions and information on the Activity Sheet and apply them to their observations to learn the meaning of words related to polarity, attractions, and dissolving at the molecular level. Students also integrate information from text with molecular models to improve their understanding.

Writing Standards for Literacy in Science and Technical Subjects 6-8

LITERACY.WHST.6-8.1

Write arguments focused on discipline-specific content

- a. Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim (s) from alternate or opposing claims, and organize the reasons and evidence logically.
- b. Support claim(s) with logical reasoning and relevant accurate data and evidence that demonstrate an understanding of the topic or text using credible sources.

- c. Use words, phrases, and clauses to create cohesion and clarify the relationship among claim(s), counterclaims, reasons, and evidence.
- d. Establish and maintain a formal style.
- e. Provide a concluding statement or section that follows from and supports the argument presented.

Students use the Activity Sheet to write answers to questions about their observations. Students also describe how the molecular model illustrations and animations from the lesson relate to their observations. Students apply reasoning from the molecular models to evidence from their observations to make and support a claim that answers the Question to Investigate about whether isopropyl alcohol, mineral oil, and corn syrup can dissolve in water.

The Common Core English Language Arts Standards (CCELA)

CHAPTER 5, LESSON 8: CAN GASES DISSOLVE IN WATER?

Reading Standards for Literacy in Science and Technical Subjects 6-8

LITERACY.RST.6-8.3

Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

LITERACY.RST.6-8.4

Determine the meaning of symbols, key terms and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.

LITERACY.RST.6-8.7

Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

Students use the Activity Sheet to read and follow a multistep procedure to discover whether gases stay dissolved better in warm or cold water. Students read the questions and information on the Activity Sheet and apply them to their observations to learn the meaning of words related to heat, molecular motion, and attractions at the molecular level. Students also integrate information from text with molecular models to improve their understanding.

Writing Standards for Literacy in Science and Technical Subjects 6-8

LITERACY.WHST.6-8.1

Write arguments focused on discipline-specific content

- a. Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim (s) from alternate or opposing claims, and organize the reasons and evidence logically.
- b. Support claim(s) with logical reasoning and relevant accurate data and evidence that demonstrate an understanding of the topic or text using credible sources.
- c. Use words, phrases, and clauses to create cohesion and clarify the relationship

among claim(s), counterclaims, reasons, and evidence.

d. Establish and maintain a formal style.

e. Provide a concluding statement or section that follows from and supports the argument presented.

Students use the Activity Sheet to write answers to questions about their observations. Students also describe how the molecular model illustrations and animations from the lesson relate to their observations. Students apply reasoning from the molecular models to evidence from their observations to make and support a claim that answers the Question to Investigate about whether gases stay dissolved better in cold or warm water.

The Common Core English Language Arts Standards (CCELA)

CHAPTER 5, LESSON 9: TEMPERATURE CHANGES IN DISSOLVING

Reading Standards for Literacy in Science and Technical Subjects 6-8

LITERACY.RST.6-8.3

Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

LITERACY.RST.6-8.4

Determine the meaning of symbols, key terms and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.

LITERACY.RST.6-8.7

Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

Students use the Activity Sheet to read and follow a multistep procedure to discover which of two solutes dissolves the most endothermically and which of two different solutes dissolves the most exothermically. Students read the questions and information on the Activity Sheet and apply them to their observations to learn the meaning of words related to energy, endothermic, exothermic, and dissolving at the molecular level. Students also integrate information from text with molecular models to improve their understanding.

Writing Standards for Literacy in Science and Technical Subjects 6-8

LITERACY.WHST.6-8.1

Write arguments focused on discipline-specific content

- a. Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim (s) from alternate or opposing claims, and organize the reasons and evidence logically.
- b. Support claim(s) with logical reasoning and relevant accurate data and evidence that demonstrate an understanding of the topic or text using credible sources.

- c. Use words, phrases, and clauses to create cohesion and clarify the relationship among claim(s), counterclaims, reasons, and evidence.
- d. Establish and maintain a formal style.
- e. Provide a concluding statement or section that follows from and supports the argument presented.

Students use the Activity Sheet to write answers to questions about their observations. Students also describe how the molecular model illustrations and animations from the lesson relate to their observations. Students apply reasoning from the molecular models to evidence from their observations to make and support a claim that answers the Question to Investigate about which solute dissolves the most endothermically and which dissolve the most exothermically.