

Main Criteria: National Theatre for Children
Secondary Criteria: Ohio Learning Standards, Next Generation Science Standards (NGSS)
Subject: Science
Grades: 3, 4, 5

National Theatre for Children

How electricity is made

Next Generation Science Standards (NGSS)

Science

Grade 4 - Adopted: 2013

STRAND	NGSS.4-PS.	PHYSICAL SCIENCE
TITLE	4-PS3.	Energy
		Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	4-PS3-2.	Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.
STRAND	NGSS.4-ESS.	EARTH AND SPACE SCIENCE
TITLE	4-ESS3.	Earth and Human Activity
		Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	4-ESS3-1.	Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

Ohio Learning Standards

Science

Grade 3 - Adopted: 2011

DOMAIN / ACADEMIC CONTENT STANDARD	OH.3.	Observations of the Environment: This theme focuses on helping students develop the skills for systematic discovery to understand the science of the physical world around them in greater depth by using scientific inquiry.
STANDARD / BENCHMARK	3.SI.	Science Inquiry and Application - During the years of PreK-4, all students must become proficient in the use of the following scientific processes, with appropriate laboratory safety techniques, to construct their knowledge and understanding in all science content areas:
BENCHMARK / GRADE LEVEL INDICATOR	3.SI.5.	Communicate about observations, investigations and explanations.
DOMAIN / ACADEMIC CONTENT STANDARD	OH.3.	Observations of the Environment: This theme focuses on helping students develop the skills for systematic discovery to understand the science of the physical world around them in greater depth by using scientific inquiry.
STANDARD / BENCHMARK	3.ESS.	Earth and Space Science (ESS)
BENCHMARK / GRADE LEVEL INDICATOR		Topic: Earth's Resources - This topic focuses on Earth's resources. While resources can be living and nonliving, within this strand, the emphasis is on Earth's nonliving resources, such as water, air, rock, soil and the energy resources they represent.
PROFICIENCY LEVEL	3.ESS.1.	Earth's nonliving resources have specific properties.
INDICATOR	3.ESS.1.1	Soil is composed of pieces of rock, organic material, water and air and has characteristics that can be measured and observed. Rocks have unique characteristics that allow them to be sorted and classified. Rocks form in different ways. Air and water are nonliving resources.
DOMAIN / ACADEMIC CONTENT STANDARD	OH.3.	Observations of the Environment: This theme focuses on helping students develop the skills for systematic discovery to understand the science of the physical world around them in greater depth by using scientific inquiry.
STANDARD / BENCHMARK	3.ESS.	Earth and Space Science (ESS)
BENCHMARK / GRADE LEVEL		Topic: Earth's Resources - This topic focuses on Earth's resources. While resources can be living and nonliving, within this strand, the emphasis is on Earth's nonliving

INDICATOR		resources, such as water, air, rock, soil and the energy resources they represent.
PROFICIENCY LEVEL	3.ESS.2.	Earth's resources can be used for energy.
INDICATOR	3.ESS.2.1	Many of Earth's resources can be used for the energy they contain. Renewable energy is an energy resource, such as wind, water or solar energy, that is replenished within a short amount of time by natural processes. Nonrenewable energy is an energy resource, such as coal or oil, that is a finite energy source that cannot be replenished in a short amount of time.
DOMAIN / ACADEMIC CONTENT STANDARD	OH.3.	Observations of the Environment: This theme focuses on helping students develop the skills for systematic discovery to understand the science of the physical world around them in greater depth by using scientific inquiry.
STANDARD / BENCHMARK	3.ESS.	Earth and Space Science (ESS)
BENCHMARK / GRADE LEVEL INDICATOR		Topic: Earth's Resources - This topic focuses on Earth's resources. While resources can be living and nonliving, within this strand, the emphasis is on Earth's nonliving resources, such as water, air, rock, soil and the energy resources they represent.
PROFICIENCY LEVEL	3.ESS.3.	Some of Earth's resources are limited.
INDICATOR	3.ESS.3.1	Some of Earth's resources become limited due to overuse and/or contamination. Reducing resource use, decreasing waste and/or pollution, recycling and reusing can help conserve these resources.
DOMAIN / ACADEMIC CONTENT STANDARD	OH.3.	Observations of the Environment: This theme focuses on helping students develop the skills for systematic discovery to understand the science of the physical world around them in greater depth by using scientific inquiry.
STANDARD / BENCHMARK	3.PS.	Physical Science (PS)
BENCHMARK / GRADE LEVEL INDICATOR		Topic: Matter and Forms of Energy - This topic focuses on the relationship between matter and energy. Matter has specific properties and is found in all substances on Earth. Heat is a familiar form of energy that can change the states of matter.
PROFICIENCY LEVEL	3.PS.3.	Heat, electrical energy, light, sound and magnetic energy are forms of energy.
INDICATOR	3.PS.3.1.	There are many different forms of energy. Energy is the ability to cause motion or create change.

Ohio Learning Standards

Science

Grade 4 - Adopted: 2011

DOMAIN / ACADEMIC CONTENT STANDARD	OH.4.	Interconnections within Systems: This theme focuses on helping students recognize the components of various systems and then investigate dynamic and sustainable relationships within systems using scientific inquiry.
STANDARD / BENCHMARK	4.SI.	Science Inquiry and Application - During the years of PreK-4, all students must become proficient in the use of the following scientific processes, with appropriate laboratory safety techniques, to construct their knowledge and understanding in all science content areas:
BENCHMARK / GRADE LEVEL INDICATOR	4.SI.5.	Communicate about observations, investigations and explanations.
DOMAIN / ACADEMIC CONTENT STANDARD	OH.4.	Interconnections within Systems: This theme focuses on helping students recognize the components of various systems and then investigate dynamic and sustainable relationships within systems using scientific inquiry.
STANDARD / BENCHMARK	4.PS.	Physical Science (PS)
BENCHMARK / GRADE LEVEL INDICATOR		Topic: Electricity, Heat and Matter - This topic focuses on the conservation of matter and the processes of energy transfer and transformation, especially as they apply to heat and electrical energy.
PROFICIENCY LEVEL	4.PS.2.	Energy can be transformed from one form to another or can be transferred from one location to another.
INDICATOR	4.PS.1.4.	Electricity and magnetism are closely related.

Ohio Learning Standards

Science

Grade 5 - Adopted: 2011

DOMAIN / ACADEMIC CONTENT STANDARD	OH.5.	Interconnections within Systems: This theme focuses on helping students recognize the components of various systems and then investigate dynamic and sustainable relationships within systems using scientific inquiry.
STANDARD / BENCHMARK	5.SI.	Science Inquiry and Application - During the years of grades 5-8, all students must use the following scientific processes, with appropriate laboratory safety techniques, to construct their knowledge and understanding in all science content areas:
BENCHMARK / GRADE LEVEL INDICATOR	5.SI.5.	Develop descriptions, models, explanations and predictions.
BENCHMARK / GRADE LEVEL INDICATOR	5.SI.7.	Recognize and analyze alternative explanations and predications.

How energy is used unwisely

Next Generation Science Standards (NGSS)

Science

Grade 4 - Adopted: 2013

STRAND	NGSS.4-PS.	PHYSICAL SCIENCE
TITLE	4-PS3.	Energy
		Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	4-PS3-2.	Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.
STRAND	NGSS.4-ESS.	EARTH AND SPACE SCIENCE
TITLE	4-ESS3.	Earth and Human Activity
		Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	4-ESS3-1.	Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

Next Generation Science Standards (NGSS)

Science

Grade 5 - Adopted: 2013

STRAND	NGSS.5-ESS.	EARTH AND SPACE SCIENCE
TITLE	5-ESS3.	Earth and Human Activity
		Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	5-ESS3-1.	Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

Ohio Learning Standards

Science

Grade 3 - Adopted: 2011

DOMAIN / ACADEMIC CONTENT STANDARD	OH.3.	Observations of the Environment: This theme focuses on helping students develop the skills for systematic discovery to understand the science of the physical world around them in greater depth by using scientific inquiry.
STANDARD / BENCHMARK	3.ESS.	Earth and Space Science (ESS)
BENCHMARK / GRADE LEVEL INDICATOR		Topic: Earth's Resources - This topic focuses on Earth's resources. While resources can be living and nonliving, within this strand, the emphasis is on Earth's nonliving resources, such as water, air, rock, soil and the energy resources they represent.
PROFICIENCY LEVEL	3.ESS.1.	Earth's nonliving resources have specific properties.
INDICATOR	3.ESS.1.1	Soil is composed of pieces of rock, organic material, water and air and has characteristics that can be measured and observed. Rocks have unique characteristics that allow them to be sorted and classified. Rocks form in different ways. Air and water are nonliving resources.

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PROFICIENCY LEVEL	3.ESS.2.	Earth's resources can be used for energy.
INDICATOR	3.ESS.2.1	Many of Earth's resources can be used for the energy they contain. Renewable energy is an energy resource, such as wind, water or solar energy, that is replenished within a short amount of time by natural processes. Nonrenewable energy is an energy resource, such as coal or oil, that is a finite energy source that cannot be replenished in a short amount of time.
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PROFICIENCY LEVEL	3.ESS.3.	Some of Earth's resources are limited.
INDICATOR	3.ESS.3.1	Some of Earth's resources become limited due to overuse and/or contamination. Reducing resource use, decreasing waste and/or pollution, recycling and reusing can help conserve these resources.

How we use natural resources

Next Generation Science Standards (NGSS)

Science

Grade 4 - Adopted: 2013

STRAND	NGSS.4-ESS.	EARTH AND SPACE SCIENCE
TITLE	4-ESS3.	Earth and Human Activity
		Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	4-ESS3-1.	Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

Ohio Learning Standards

Science

Grade 3 - Adopted: 2011

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DOMAIN / ACADEMIC CONTENT STANDARD	OH.3.	Observations of the Environment: This theme focuses on helping students develop the skills for systematic discovery to understand the science of the physical world around them in greater depth by using scientific inquiry.

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PROFICIENCY LEVEL	3.ESS.2.	Earth's resources can be used for energy.
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The science of energy and technology

Next Generation Science Standards (NGSS)

Science

Grade 4 - Adopted: 2013

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TITLE	4-PS3.	Energy
		Students who demonstrate understanding can:
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STRAND	NGSS.4-ESS.	EARTH AND SPACE SCIENCE
TITLE	4-ESS3.	Earth and Human Activity
		Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	4-ESS3-1.	Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

Ohio Learning Standards

Science

Grade 3 - Adopted: 2011

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BENCHMARK / GRADE LEVEL INDICATOR		Topic: Matter and Forms of Energy - This topic focuses on the relationship between matter and energy. Matter has specific properties and is found in all substances on Earth. Heat is a familiar form of energy that can change the states of matter.
PROFICIENCY LEVEL	3.PS.3.	Heat, electrical energy, light, sound and magnetic energy are forms of energy.
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The science of natural resources

Next Generation Science Standards (NGSS)

Science

Grade 4 - Adopted: 2013

STRAND	NGSS.4-ESS.	EARTH AND SPACE SCIENCE
TITLE	4-ESS3.	Earth and Human Activity
		Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	4-ESS3-1.	Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

Ohio Learning Standards

Science

Grade 3 - Adopted: 2011

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The uses of electricity

Next Generation Science Standards (NGSS)

Science

Grade 4 - Adopted: 2013

STRAND	NGSS.4-ESS.	EARTH AND SPACE SCIENCE
TITLE	4-ESS3.	Earth and Human Activity
		Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	4-ESS3-1.	Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

Next Generation Science Standards (NGSS)

Science

Grade 5 - Adopted: 2013

STRAND	NGSS.5-ESS.	EARTH AND SPACE SCIENCE
TITLE	5-ESS3.	Earth and Human Activity
		Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	5-ESS3-1.	Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

Ohio Learning Standards

Science

Grade 3 - Adopted: 2011

DOMAIN / ACADEMIC CONTENT STANDARD	OH.3.	Observations of the Environment: This theme focuses on helping students develop the skills for systematic discovery to understand the science of the physical world around them in greater depth by using scientific inquiry.
STANDARD / BENCHMARK	3.SI.	Science Inquiry and Application - During the years of PreK-4, all students must become proficient in the use of the following scientific processes, with appropriate laboratory safety techniques, to construct their knowledge and understanding in all science content areas:
BENCHMARK / GRADE LEVEL INDICATOR	3.SI.5.	Communicate about observations, investigations and explanations.
DOMAIN / ACADEMIC CONTENT STANDARD	OH.3.	Observations of the Environment: This theme focuses on helping students develop the skills for systematic discovery to understand the science of the physical world around them in greater depth by using scientific inquiry.
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PROFICIENCY LEVEL	3.ESS.2.	Earth's resources can be used for energy.
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INDICATOR	3.ESS.3.1	Some of Earth's resources become limited due to overuse and/or contamination. Reducing resource use, decreasing waste and/or pollution, recycling and reusing can help conserve these resources.

Ohio Learning Standards

Science

Grade 4 - Adopted: 2011

DOMAIN / ACADEMIC CONTENT STANDARD	OH.4.	Interconnections within Systems: This theme focuses on helping students recognize the components of various systems and then investigate dynamic and sustainable relationships within systems using scientific inquiry.
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Ohio Learning Standards

Science

Grade 5 - Adopted: 2011

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BENCHMARK / GRADE LEVEL INDICATOR	5.SI.5.	Develop descriptions, models, explanations and predictions.
BENCHMARK / GRADE LEVEL INDICATOR	5.SI.7.	Recognize and analyze alternative explanations and predications.

What YOU can do to conserve energy

Next Generation Science Standards (NGSS)

Science

Grade 4 - Adopted: 2013

STRAND	NGSS.4-ESS.	EARTH AND SPACE SCIENCE
TITLE	4-ESS3.	Earth and Human Activity
		Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	4-ESS3-1.	Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

Next Generation Science Standards (NGSS)

Science

Grade 5 - Adopted: 2013

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TITLE	5-ESS3.	Earth and Human Activity
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Ohio Learning Standards

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What are energy and electricity

Next Generation Science Standards (NGSS)

Science

Grade 4 - Adopted: 2013

STRAND	NGSS.4-PS.	PHYSICAL SCIENCE
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TITLE	4-PS3.	Energy
		Students who demonstrate understanding can:
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INDICATOR	3.PS.3.1.	There are many different forms of energy. Energy is the ability to cause motion or create change.

What are energy resources

Next Generation Science Standards (NGSS)

Science

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STRAND	NGSS.4-ESS.	EARTH AND SPACE SCIENCE
TITLE	4-ESS3.	Earth and Human Activity
		Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	4-ESS3-1.	Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

Ohio Learning Standards

Science

Grade 3 - Adopted: 2011

DOMAIN / ACADEMIC CONTENT STANDARD	OH.3.	Observations of the Environment: This theme focuses on helping students develop the skills for systematic discovery to understand the science of the physical world around them in greater depth by using scientific inquiry.
STANDARD / BENCHMARK	3.ESS.	Earth and Space Science (ESS)
BENCHMARK / GRADE LEVEL INDICATOR		Topic: Earth's Resources - This topic focuses on Earth's resources. While resources can be living and nonliving, within this strand, the emphasis is on Earth's nonliving resources, such as water, air, rock, soil and the energy resources they represent.
PROFICIENCY LEVEL	3.ESS.1.	Earth's nonliving resources have specific properties.
INDICATOR	3.ESS.1.1	Soil is composed of pieces of rock, organic material, water and air and has characteristics that can be measured and observed. Rocks have unique characteristics that allow them to be sorted and classified. Rocks form in different ways. Air and water are nonliving resources.
DOMAIN / ACADEMIC CONTENT STANDARD	OH.3.	Observations of the Environment: This theme focuses on helping students develop the skills for systematic discovery to understand the science of the physical world around them in greater depth by using scientific inquiry.

STANDARD / BENCHMARK	3.ESS.	Earth and Space Science (ESS)
BENCHMARK / GRADE LEVEL INDICATOR		Topic: Earth's Resources - This topic focuses on Earth's resources. While resources can be living and nonliving, within this strand, the emphasis is on Earth's nonliving resources, such as water, air, rock, soil and the energy resources they represent.
PROFICIENCY LEVEL	3.ESS.2.	Earth's resources can be used for energy.
INDICATOR	3.ESS.2.1	Many of Earth's resources can be used for the energy they contain. Renewable energy is an energy resource, such as wind, water or solar energy, that is replenished within a short amount of time by natural processes. Nonrenewable energy is an energy resource, such as coal or oil, that is a finite energy source that cannot be replenished in a short amount of time.
DOMAIN / ACADEMIC CONTENT STANDARD	OH.3.	Observations of the Environment: This theme focuses on helping students develop the skills for systematic discovery to understand the science of the physical world around them in greater depth by using scientific inquiry.
STANDARD / BENCHMARK	3.ESS.	Earth and Space Science (ESS)
BENCHMARK / GRADE LEVEL INDICATOR		Topic: Earth's Resources - This topic focuses on Earth's resources. While resources can be living and nonliving, within this strand, the emphasis is on Earth's nonliving resources, such as water, air, rock, soil and the energy resources they represent.
PROFICIENCY LEVEL	3.ESS.3.	Some of Earth's resources are limited.
INDICATOR	3.ESS.3.1	Some of Earth's resources become limited due to overuse and/or contamination. Reducing resource use, decreasing waste and/or pollution, recycling and reusing can help conserve these resources.

What is and how to be Energy Efficient

Next Generation Science Standards (NGSS)

Science

Grade 4 - Adopted: 2013

STRAND	NGSS.4-PS.	PHYSICAL SCIENCE
TITLE	4-PS3.	Energy
		Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	4-PS3-2.	Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.
STRAND	NGSS.4-ESS.	EARTH AND SPACE SCIENCE
TITLE	4-ESS3.	Earth and Human Activity
		Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	4-ESS3-1.	Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

Next Generation Science Standards (NGSS)

Science

Grade 5 - Adopted: 2013

STRAND	NGSS.5-ESS.	EARTH AND SPACE SCIENCE
TITLE	5-ESS3.	Earth and Human Activity
		Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	5-ESS3-1.	Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

Ohio Learning Standards

Science

Grade 3 - Adopted: 2011

DOMAIN / ACADEMIC CONTENT STANDARD	OH.3.	Observations of the Environment: This theme focuses on helping students develop the skills for systematic discovery to understand the science of the physical world around them in greater depth by using scientific inquiry.
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STANDARD / BENCHMARK	3.ESS.	Earth and Space Science (ESS)
BENCHMARK / GRADE LEVEL INDICATOR		Topic: Earth's Resources - This topic focuses on Earth's resources. While resources can be living and nonliving, within this strand, the emphasis is on Earth's nonliving resources, such as water, air, rock, soil and the energy resources they represent.
PROFICIENCY LEVEL	3.ESS.1.	Earth's nonliving resources have specific properties.
INDICATOR	3.ESS.1.1	Soil is composed of pieces of rock, organic material, water and air and has characteristics that can be measured and observed. Rocks have unique characteristics that allow them to be sorted and classified. Rocks form in different ways. Air and water are nonliving resources.
DOMAIN / ACADEMIC CONTENT STANDARD	OH.3.	Observations of the Environment: This theme focuses on helping students develop the skills for systematic discovery to understand the science of the physical world around them in greater depth by using scientific inquiry.
STANDARD / BENCHMARK	3.ESS.	Earth and Space Science (ESS)
BENCHMARK / GRADE LEVEL INDICATOR		Topic: Earth's Resources - This topic focuses on Earth's resources. While resources can be living and nonliving, within this strand, the emphasis is on Earth's nonliving resources, such as water, air, rock, soil and the energy resources they represent.
PROFICIENCY LEVEL	3.ESS.2.	Earth's resources can be used for energy.
INDICATOR	3.ESS.2.1	Many of Earth's resources can be used for the energy they contain. Renewable energy is an energy resource, such as wind, water or solar energy, that is replenished within a short amount of time by natural processes. Nonrenewable energy is an energy resource, such as coal or oil, that is a finite energy source that cannot be replenished in a short amount of time.
DOMAIN / ACADEMIC CONTENT STANDARD	OH.3.	Observations of the Environment: This theme focuses on helping students develop the skills for systematic discovery to understand the science of the physical world around them in greater depth by using scientific inquiry.
STANDARD / BENCHMARK	3.ESS.	Earth and Space Science (ESS)
BENCHMARK / GRADE LEVEL INDICATOR		Topic: Earth's Resources - This topic focuses on Earth's resources. While resources can be living and nonliving, within this strand, the emphasis is on Earth's nonliving resources, such as water, air, rock, soil and the energy resources they represent.
PROFICIENCY LEVEL	3.ESS.3.	Some of Earth's resources are limited.
INDICATOR	3.ESS.3.1	Some of Earth's resources become limited due to overuse and/or contamination. Reducing resource use, decreasing waste and/or pollution, recycling and reusing can help conserve these resources.