

Main Criteria: National Theatre for Children

Secondary Criteria: Minnesota Academic Standards, Next Generation Science Standards (NGSS)

Subject: Science

Grades: 3, 4, 5

National Theatre for Children

How electricity is made

Minnesota Academic Standards

Science

Grade 3 - Adopted: 2009

CONTENT STANDARD / DOMAIN	MN.3.1.	The Nature of Science and Engineering
PERFORMANCE INDICATOR / DOMAIN COMPONENT	3.1.3.	Interactions Among Science, Technology, Engineering, Mathematics, and Society
INDICATORS OF PROGRESS / STRAND	3.1.3.2.	The student will understand that men and women throughout the history of all cultures, including Minnesota American Indian tribes and communities, have been involved in engineering design and scientific inquiry.
INDICATORS OF PROGRESS	3.1.3.2.2.	Recognize that the practice of science and/or engineering involves many different kinds of work and engages men and women of all ages and backgrounds.

Minnesota Academic Standards

Science

Grade 4 - Adopted: 2009

CONTENT STANDARD / DOMAIN	MN.4.1.	The Nature of Science and Engineering
PERFORMANCE INDICATOR / DOMAIN COMPONENT	4.1.2.	Practice of Engineering
INDICATORS OF PROGRESS / STRAND	4.1.2.1.	The student will understand that engineers design, create and develop structures, processes and systems that are intended to improve society and may make humans more productive.
INDICATORS OF PROGRESS	4.1.2.1.1.	Describe the positive and negative impacts that the designed world has on the natural world as more and more engineered products and services are created and used.
CONTENT STANDARD / DOMAIN	MN.4.1.	The Nature of Science and Engineering
PERFORMANCE INDICATOR / DOMAIN COMPONENT	4.1.2.	Practice of Engineering
INDICATORS OF PROGRESS / STRAND	4.1.2.2.	The student will understand that engineering design is the process of identifying problems, developing multiple solutions, selecting the best possible solution, and building the product.
INDICATORS OF PROGRESS	4.1.2.2.1.	Identify and investigate a design solution and describe how it was used to solve an everyday problem.
CONTENT STANDARD / DOMAIN	MN.4.1.	The Nature of Science and Engineering
PERFORMANCE INDICATOR / DOMAIN COMPONENT	4.1.3.	Interactions Among Science, Technology, Engineering, Mathematics, and Society
INDICATORS OF PROGRESS / STRAND	4.1.3.3.	The student will understand that the needs of any society influence the technologies that are developed and how they are used.

INDICATORS OF PROGRESS	4.1.3.3.1.	Describe a situation in which one invention led to other inventions.
CONTENT STANDARD / DOMAIN	MN.4.2.	Physical Science
PERFORMANCE INDICATOR / DOMAIN COMPONENT	4.2.3.	Energy
INDICATORS OF PROGRESS / STRAND	4.2.3.2.	The student will understand that energy can be transformed within a system or transferred to other systems or the environment.
INDICATORS OF PROGRESS	4.2.3.2.3.	Demonstrate how an electric current can produce a magnetic force.

Minnesota Academic Standards

Science

Grade 5 - Adopted: 2009

CONTENT STANDARD / DOMAIN	MN.5.3.	Earth and Space Science
PERFORMANCE INDICATOR / DOMAIN COMPONENT	5.3.4.	Human Interaction with Earth Systems
INDICATORS OF PROGRESS / STRAND	5.3.4.1.	The student will understand that in order to maintain and improve their existence, humans interact with and influence Earth systems.
INDICATORS OF PROGRESS	5.3.4.1.1.	Identify renewable and non-renewable energy and material resources that are found in Minnesota and describe how they are used.
INDICATORS OF PROGRESS	5.3.4.1.2.	Give examples of how mineral and energy resources are obtained and processed and how that processing modifies their properties to make them more useful.

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.

How energy is used unwisely

Minnesota Academic Standards

Science

Grade 4 - Adopted: 2009

CONTENT STANDARD / DOMAIN	MN.4.1.	The Nature of Science and Engineering
PERFORMANCE INDICATOR / DOMAIN COMPONENT	4.1.2.	Practice of Engineering
INDICATORS OF PROGRESS /	4.1.2.1.	The student will understand that engineers design, create and develop structures, processes and systems that are intended to improve society and may make humans

STRAND		more productive.
INDICATORS OF PROGRESS	4.1.2.1.1.	Describe the positive and negative impacts that the designed world has on the natural world as more and more engineered products and services are created and used.
CONTENT STANDARD / DOMAIN	MN.4.1.	The Nature of Science and Engineering
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INDICATORS OF PROGRESS / STRAND	4.1.2.2.	The student will understand that engineering design is the process of identifying problems, developing multiple solutions, selecting the best possible solution, and building the product.
INDICATORS OF PROGRESS	4.1.2.2.1.	Identify and investigate a design solution and describe how it was used to solve an everyday problem.

Minnesota Academic Standards

Science

Grade 5 - Adopted: 2009

CONTENT STANDARD / DOMAIN	MN.5.3.	Earth and Space Science
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INDICATORS OF PROGRESS	5.3.4.1.2.	Give examples of how mineral and energy resources are obtained and processed and how that processing modifies their properties to make them more useful.
INDICATORS OF PROGRESS	5.3.4.1.3.	Compare the impact of individual decisions on natural systems.

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.

How we use natural resources

Minnesota Academic Standards

Science

Grade 4 - Adopted: 2009

CONTENT STANDARD / DOMAIN	MN.4.1.	The Nature of Science and Engineering
PERFORMANCE INDICATOR / DOMAIN COMPONENT	4.1.2.	Practice of Engineering
INDICATORS OF PROGRESS / STRAND	4.1.2.1.	The student will understand that engineers design, create and develop structures, processes and systems that are intended to improve society and may make humans more productive.
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Minnesota Academic Standards

Science

Grade 5 - Adopted: 2009

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PERFORMANCE INDICATOR / DOMAIN COMPONENT	5.3.4.	Human Interaction with Earth Systems
INDICATORS OF PROGRESS / STRAND	5.3.4.1.	The student will understand that in order to maintain and improve their existence, humans interact with and influence Earth systems.
INDICATORS OF PROGRESS	5.3.4.1.2.	Give examples of how mineral and energy resources are obtained and processed and how that processing modifies their properties to make them more useful.

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
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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.

The science of energy and technology

Minnesota Academic Standards

Science

Grade 4 - Adopted: 2009

CONTENT STANDARD / DOMAIN	MN.4.1.	The Nature of Science and Engineering
PERFORMANCE INDICATOR / DOMAIN COMPONENT	4.1.2.	Practice of Engineering
INDICATORS OF PROGRESS / STRAND	4.1.2.1.	The student will understand that engineers design, create and develop structures, processes and systems that are intended to improve society and may make humans more productive.
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Minnesota Academic Standards

Science

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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.

The science of natural resources

Minnesota Academic Standards

Science

Grade 4 - Adopted: 2009

CONTENT STANDARD / DOMAIN	MN.4.1.	The Nature of Science and Engineering
PERFORMANCE INDICATOR / DOMAIN COMPONENT	4.1.2.	Practice of Engineering
INDICATORS OF PROGRESS / STRAND	4.1.2.1.	The student will understand that engineers design, create and develop structures, processes and systems that are intended to improve society and may make humans more productive.
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Minnesota Academic Standards

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Grade 5 - Adopted: 2009

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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
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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.

The uses of electricity

Minnesota Academic Standards

Science

Grade 4 - Adopted: 2009

CONTENT STANDARD / DOMAIN	MN.4.1.	The Nature of Science and Engineering
PERFORMANCE INDICATOR / DOMAIN COMPONENT	4.1.2.	Practice of Engineering

INDICATORS OF PROGRESS / STRAND	4.1.2.1.	The student will understand that engineers design, create and develop structures, processes and systems that are intended to improve society and may make humans more productive.
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Minnesota Academic Standards

Science

Grade 5 - Adopted: 2009

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Next Generation Science Standards (NGSS)

Science

Grade 4 - Adopted: 2013

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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.

What YOU can do to conserve energy

Minnesota Academic Standards

Science

Grade 4 - Adopted: 2009

CONTENT STANDARD / DOMAIN	MN.4.1.	The Nature of Science and Engineering
PERFORMANCE INDICATOR / DOMAIN COMPONENT	4.1.2.	Practice of Engineering
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**Minnesota Academic Standards
Science**

Grade 5 - Adopted: 2009

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INDICATORS OF PROGRESS	5.3.4.1.2.	Give examples of how mineral and energy resources are obtained and processed and how that processing modifies their properties to make them more useful.
INDICATORS OF PROGRESS	5.3.4.1.3.	Compare the impact of individual decisions on natural systems.
CONTENT STANDARD / DOMAIN	MN.5.4.	Life Science
PERFORMANCE INDICATOR / DOMAIN COMPONENT	5.4.4.	Human Interactions with Living Systems
INDICATORS OF PROGRESS / STRAND	5.4.4.1.	The student will understand that humans change environments in ways that can be either beneficial or harmful to themselves and other organisms.
INDICATORS OF PROGRESS	5.4.4.1.1.	Give examples of beneficial and harmful human interaction with natural systems.

**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.
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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.

What are energy and electricity

Minnesota Academic Standards

Science

Grade 4 - Adopted: 2009

CONTENT STANDARD / DOMAIN	MN.4.1.	The Nature of Science and Engineering
PERFORMANCE INDICATOR / DOMAIN COMPONENT	4.1.2.	Practice of Engineering
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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.

What are energy resources

Minnesota Academic Standards

Science

Grade 4 - Adopted: 2009

CONTENT STANDARD / DOMAIN	MN.4.1.	The Nature of Science and Engineering
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PERFORMANCE INDICATOR / DOMAIN COMPONENT	4.1.2.	Practice of Engineering
INDICATORS OF PROGRESS / STRAND	4.1.2.1.	The student will understand that engineers design, create and develop structures, processes and systems that are intended to improve society and may make humans more productive.
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Minnesota Academic Standards

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TITLE	4-ESS3.	Earth and Human Activity
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What is and how to be Energy Efficient

Minnesota Academic Standards

Science

Grade 4 - Adopted: 2009

CONTENT	MN.4.1.	The Nature of Science and Engineering
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STANDARD / DOMAIN		
PERFORMANCE INDICATOR / DOMAIN COMPONENT	4.1.2.	Practice of Engineering
INDICATORS OF PROGRESS / STRAND	4.1.2.1.	The student will understand that engineers design, create and develop structures, processes and systems that are intended to improve society and may make humans more productive.
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Science

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