Aeronautics Educator Guide

National Standards

Grades K – 2 Science

Source: National Standards Science Literacy 2008

Lesson/Activity	Grades K - 2 - Science Standards
Air Engines (12-16)	1B/P1 People can often learn about things around them by just observing those things carefully, but sometimes they can learn more by doing something to the things and noting what happens.
Air Engines (12-16)	4F/P1 Things move in many different ways, such as straight, zigzag, round and round, back and forth, and fast and slow.
Air Engines (12-16)	4F/P2 The way to change how something is moving is to give it a push or a pull.
Dunked Napkin (17-22)	1B/P1 People can often learn about things around them by just observing those things carefully, but sometimes they can learn more by doing something to the things and noting what happens.
Dunked Napkin (17-22)	4F/P1 Things move in many different ways, such as straight, zigzag, round and round, back and forth, and fast and slow.
Dunked Napkin (17-22)	4F/P2 The way to change how something is moving is to give it a push or a pull.
Paper Bag Masked (23-28)	1B/P1 People can often learn about things around them by just observing those things carefully, but sometimes they can learn more by doing something to the things and noting what happens.
Paper Bag Masked (23-28)	4F/P1 Things move in many different ways, such as straight, zigzag, round and round, back and forth, and fast and slow.
Paper Bag Masked (23-28)	4F/P2 The way to change how something is moving is to give it a push or a pull.
Wind in you Socks) (29-35)	1B/P1 People can often learn about things around them by just observing those things carefully, but sometimes they can learn more by doing something to the things and noting what happens.
Wind in you Socks) (29-35)	4F/P1 Things move in many different ways, such as straight, zigzag, round and round, back and forth, and fast and slow.
Wind in you Socks) (29-35)	4F/P2 The way to change how something is moving is to give it a push or a pull.
Air: Interdisciplinary Learning Activities (36-39)	1B/P1 People can often learn about things around them by just observing those things carefully, but sometimes they can learn more by doing something to the things and noting what happens.
Air: Interdisciplinary Learning Activities (36-39)	4F/P1 Things move in many different ways, such as straight, zigzag, round and round, back and forth, and fast and slow.
Air: Interdisciplinary Learning Activities (36-39)	4F/P2 The way to change how something is moving is to give it a push or a pull.
Bag Balloons (40-43)	1B/P1 People can often learn about things around them by just observing those things carefully, but sometimes they can learn more by doing something to the things and noting what happens.
Bag Balloons (40-43)	4F/P1 Things move in many different ways, such as straight, zigzag, round and round, back and forth, and fast and slow.
Bag Balloons (40-43)	4F/P2 The way to change how something is moving is to give it a push or a pull.
Sled Kite (44-51)	1B/P1 People can often learn about things around them by just observing those things carefully, but sometimes they can learn more by doing something to the things and noting what happens.
Sled Kite (44-51)	4F/P1 Things move in many different ways, such as straight, zigzag, round and round, back and forth, and fast and slow.
Sled Kite (44-51)	4F/P2 The way to change how something is moving is to give it a push or a pull.
Right Flight (52-59)	1B/P1 People can often learn about things around them by just observing those things carefully, but sometimes they can learn more by doing something to the things and noting what happens.
Right Flight (52-59)	4F/P1 Things move in many different ways, such as straight, zigzag, round and round, back and forth, and fast and slow.
Right Flight (52-59)	4F/P2 The way to change how something is moving is to give it a push or a pull.
Delta Wing Glider (60-68)	1B/P1 People can often learn about things around them by just observing those things carefully, but sometimes they can learn more by doing something to the things and noting what happens.
Delta Wing Glider (60-68)	4F/P1 Things move in many different ways, such as straight, zigzag, round and round, back and forth, and fast and slow.
Delta Wing Glider (60-68)	4F/P2 The way to change how something is moving is to give it a push or a pull.
Rotor Motor (69-75)	1B/P1 People can often learn about things around them by just observing those things carefully, but sometimes they can learn more by doing something to the things and noting what happens.
Rotor Motor (69-75)	4F/P1 Things move in many different ways, such as straight, zigzag, round and round, back and forth, and fast and slow.

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Lesson/Activity	Grades K - 2 Science Standards
Rotor Motor (69-75)	4F/P2 The way to change how something is moving is to give it a push or a pull.
Flight: Interdisciplinary Learning Activities (76-79)	1B/P1 People can often learn about things around them by just observing those things carefully, but sometimes they can learn more by doing something to the things and noting what happens.
Flight: Interdisciplinary Learning Activities (76-79)	4F/P1 Things move in many different ways, such as straight, zigzag, round and round, back and forth, and fast and slow.
Flight: Interdisciplinary Learning Activities (76-79)	4F/P2 The way to change how something is moving is to give it a push or a pull.
Making Time Fly (80-86)	1B/P1 People can often learn about things around them by just observing those things carefully, but sometimes they can learn more by doing something to the things and noting what happens.
Making Time Fly (80-86)	4F/P1 Things move in many different ways, such as straight, zigzag, round and round, back and forth, and fast and slow.
Making Time Fly (80-86)	4F/P2 The way to change how something is moving is to give it a push or a pull.
Where is North? The Compass Can Tell Us (87-90)	1B/P1 People can often learn about things around them by just observing those things carefully, but sometimes they can learn more by doing something to the things and noting what happens.
Where is North? The Compass Can Tell Us (87-90)	4F/P1 Things move in many different ways, such as straight, zigzag, round and round, back and forth, and fast and slow.
Where is North? The Compass Can Tell Us (87-90)	4F/P2 The way to change how something is moving is to give it a push or a pull.
Let's Build a Table Top Airport (91-96)	1B/P1 People can often learn about things around them by just observing those things carefully, but sometimes they can learn more by doing something to the things and noting what happens.
Let's Build a Table Top Airport (91-96)	4F/P1 Things move in many different ways, such as straight, zigzag, round and round, back and forth, and fast and slow.
Let's Build a Table Top Airport (91-96)	4F/P2 The way to change how something is moving is to give it a push or a pull.
Plan to Fly There (97-106)	1B/P1 People can often learn about things around them by just observing those things carefully, but sometimes they can learn more by doing something to the things and noting what happens.
Plan to Fly There (97-106)	4F/P1 Things move in many different ways, such as straight, zigzag, round and round, back and forth, and fast and slow.
Plan to Fly There (97-106)	4F/P2 The way to change how something is moving is to give it a push or a pull.
We Can Fly, You and I: Interdisciplinary Learning	1B/P1 People can often learn about things around them by just observing those things carefully, but sometimes they can learn more by doing something to the things and noting what happens.
We Can Fly, You and I: Interdisciplinary Learning	4F/P1 Things move in many different ways, such as straight, zigzag, round and round, back and forth, and fast and slow.
We Can Fly, You and I: Interdisciplinary Learning	4F/P2 The way to change how something is moving is to give it a push or a pull.

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National Standards

Grades K - 4 Science

Source: National Standards Science 1996

Lesson/Activity	Grades K - 4 Science Standards
Air Engines (12-16)	An object's motion can be described by tracing and measuring its position over time.
Air Engines (12-16)	This aspect of the standard emphasizes students asking questions that they can answer with scientific knowledge, combined with their own observations. Students should answer their questions by seeking information from reliable sources of scientific information and from their own observations and investigations.
Air Engines (12-16)	In early years, students develop simple skills, such as how to observe, measure, cut, connect, switch, turn on and off, pour, hold, tie, and hook. Beginning with simple instruments, students can use rulers to measure the length, height, and depth of objects and materials; thermometers to measure temperature; watches to measure time; beam balances and spring scales to measure weight and force; magnifiers to observe objects and organisms; and microscopes to observe the finer details of plants, animals, rocks, and other materials. Children also develop skills in the use of computers and calculators for conducting investigations.
Air Engines (12-16)	Scientific investigations involve asking and answering a question and comparing the answer with what scientists already know about the world.
Air Engines (12-16)	Tools help scientists make better observations, measurements, and equipment for investigations. They help scientists see, measure, and do things that they could not otherwise see, measure, and do.
Dunked Napkin (17-22)	This aspect of the standard emphasizes students asking questions that they can answer with scientific knowledge, combined with their own observations. Students should answer their questions by seeking information from reliable sources of scientific information and from their own observations and investigations.
Dunked Napkin (17-22)	In the earliest years, investigations are largely based on systematic observations. As students develop, they may design and conduct simple experiments to answer questions. The idea of a fair test is possible for many students to consider by fourth grade.
Dunked Napkin (17-22)	Scientific investigations involve asking and answering a question and comparing the answer with what scientists already know about the world.
Dunked Napkin (17-22)	Scientists use different kinds of investigations depending on the questions they are trying to answer. Types of investigations include describing objects, events, and organisms; classifying them; and doing a fair test (experimenting).
Paper Bag Masked (23-28)	This aspect of the standard emphasizes students asking questions that they can answer with scientific knowledge, combined with their own observations. Students should answer their questions by seeking information from reliable sources of scientific information and from their own observations and investigations.
Paper Bag Masked (23-28)	In the earliest years, investigations are largely based on systematic observations. As students develop, they may design and conduct simple experiments to answer questions. The idea of a fair test is possible for many students to consider by fourth grade.
Paper Bag Masked (23-28)	Scientific investigations involve asking and answering a question and comparing the answer with what scientists already know about the world.
Paper Bag Masked (23-28)	Scientists use different kinds of investigations depending on the questions they are trying to answer. Types of investigations include describing objects, events, and organisms; classifying them; and doing a fair test (experimenting).
Paper Bag Masked (23-28)	People have always had questions about their world. Science is one way of answering questions and explaining the natural world.
Wind in you Socks) (29-35)	Objects have many observable properties, including size, weight, shape, color, temperature, and the ability to react with other substances. Those properties can be measured using tools, such as rulers, balances, and thermometers.
Wind in you Socks) (29-35)	This aspect of the standard emphasizes students asking questions that they can answer with scientific knowledge, combined with their own observations. Students should answer their questions by seeking information from reliable sources of scientific information and from their own observations and investigations.
Wind in you Socks) (29-35)	In the earliest years, investigations are largely based on systematic observations. As students develop, they may design and conduct simple experiments to answer questions. The idea of a fair test is possible for many students to consider by fourth grade.

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National Standards

Grades K – 4 Science

Source: National Standards Science 1996

Lesson/Activity	Grades K – 4 Science Standards
Wind in you Socks) (29-35)	In early years, students develop simple skills, such as how to observe, measure, cut, connect, switch, turn on and off, pour, hold, tie, and hook. Beginning with simple instruments, students can use rulers to measure the length, height, and depth of objects and materials; thermometers to measure temperature; watches to measure time; beam balances and spring scales to measure weight and force; magnifiers to observe objects and organisms; and microscopes to observe the finer details of plants, animals, rocks, and other materials. Children also develop skills in the use of computers and calculators for conducting investigations.
Wind in you Socks) (29-35)	Scientific investigations involve asking and answering a question and comparing the answer with what scientists already know about the world.
Sled Kite (44-51)	Scientific investigations involve asking and answering a question and comparing the answer with what scientists already know about the world.
Sled Kite (44-51)	Scientists use different kinds of investigations depending on the questions they are trying to answer. Types of investigations include describing objects, events, and organisms; classifying them; and doing a fair test (experimenting).
Sled Kite (44-51)	People have always had questions about their world. Science is one way of answering questions and explaining the natural world.
Sled Kite (44-51)	Tools help scientists make better observations, measurements, and equipment for investigations. They help scientists see, measure, and do things that they could not otherwise see, measure, and do.
Right Flight (52-59)	This aspect of the standard emphasizes students asking questions that they can answer with scientific knowledge, combined with their own observations. Students should answer their questions by seeking information from reliable sources of scientific information and from their own observations and investigations.
Right Flight (52-59)	In early years, students develop simple skills, such as how to observe, measure, cut, connect, switch, turn on and off, pour, hold, tie, and hook. Beginning with simple instruments, students can use rulers to measure the length, height, and depth of objects and materials; thermometers to measure temperature; watches to measure time; beam balances and spring scales to measure weight and force; magnifiers to observe objects and organisms; and microscopes to observe the finer details of plants, animals, rocks, and other materials. Children also develop skills in the use of computers and calculators for conducting investigations.
Delta Wing Glider (60-68)	This aspect of the standard emphasizes students asking questions that they can answer with scientific knowledge, combined with their own observations. Students should answer their questions by seeking information from reliable sources of scientific information and from their own observations and investigations.
Delta Wing Glider (60-68)	In early years, students develop simple skills, such as how to observe, measure, cut, connect, switch, turn on and off, pour, hold, tie, and hook. Beginning with simple instruments, students can use rulers to measure the length, height, and depth of objects and materials; thermometers to measure temperature; watches to measure time; beam balances and spring scales to measure weight and force; magnifiers to observe objects and organisms; and microscopes to observe the finer details of plants, animals, rocks, and other materials. Children also develop skills in the use of computers and calculators for conducting investigations.
Rotor Motor (69-75)	An object's motion can be described by tracing and measuring its position over time.
Rotor Motor (69-75)	This aspect of the standard emphasizes students asking questions that they can answer with scientific knowledge, combined with their own observations. Students should answer their questions by seeking information from reliable sources of scientific information and from their own observations and investigations.
Rotor Motor (69-75)	In the earliest years, investigations are largely based on systematic observations. As students develop, they may design and conduct simple experiments to answer questions. The idea of a fair test is possible for many students to consider by fourth grade.

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Lesson/Activity	Grades K - 4 Science Standards
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Rotor Motor (69-75)	Scientific investigations involve asking and answering a question and comparing the answer with what scientists already know about the world.
Rotor Motor (69-75)	Scientists use different kinds of investigations depending on the questions they are trying to answer. Types of investigations include describing objects, events, and organisms; classifying them; and doing a fair test (experimenting).
Rotor Motor (69-75)	People have always had questions about their world. Science is one way of answering questions and explaining the natural world.
Rotor Motor (69-75)	Tools help scientists make better observations, measurements, and equipment for investigations. They help scientists see, measure, and do things that they could not otherwise see, measure, and do.
Flight: Interdisciplinary Learning Activities (76-79)	In early years, students develop simple skills, such as how to observe, measure, cut, connect, switch, turn on and off, pour, hold, tie, and hook. Beginning with simple instruments, students can use rulers to measure the length, height, and depth of objects and materials; thermometers to measure temperature; watches to measure time; beam balances and spring scales to measure weight and force; magnifiers to observe objects and organisms; and microscopes to observe the finer details of plants, animals, rocks, and other materials. Children also develop skills in the use of computers and calculators for conducting investigations.
Flight: Interdisciplinary Learning	Weather changes from day to day and over the seasons. Weather can be described by measurable quantities, such as temperature, wind direction and speed, and precipitation.
Making Time Fly (80-86)	Students should begin developing the abilities to communicate, critique, and analyze their work and the work of other students. This communication might be spoken or drawn as well as written.
Making Time Fly (80-86)	Scientists make the results of their investigations public; they describe the investigations in ways that enable others to repeat the investigations.
Making Time Fly	Science and technology have been practiced by people for a long time.
Making Time Fly	Men and women have made a variety of contributions throughout the history of science and technology.
Where is North?	Magnets attract and repel each other and certain kinds of other materials.
Where is North? The Compass Can Tell Us (87-90)	This aspect of the standard emphasizes students asking questions that they can answer with scientific knowledge, combined with their own observations. Students should answer their questions by seeking information from reliable sources of scientific information and from their own observations and investigations.
Where is North? The Compass Can Tell Us	In the earliest years, investigations are largely based on systematic observations. As students develop, they may design and conduct simple experiments to answer questions. The idea of a fair test is possible for many students to consider by fourth grade.
Where is North? The Compass Can Tell Us (87-90)	In early years, students develop simple skills, such as how to observe, measure, cut, connect, switch, turn on and off, pour, hold, tie, and hook. Beginning with simple instruments, students can use rulers to measure the length, height, and depth of objects and materials; thermometers to measure temperature; watches to measure time; beam balances and spring scales to measure weight and force; magnifiers to observe objects and organisms; and microscopes to observe the finer details of plants, animals, rocks, and other materials. Children also develop skills in the use of computers and calculators for conducting investigations.
Where is North?	Scientific investigations involve asking and answering a question and comparing the answer with what scientists already know about the world.
Where is North? The Compass Can Tell Us (87-90)	Scientists use different kinds of investigations depending on the questions they are trying to answer. Types of investigations include describing objects, events, and organisms; classifying them; and doing a fair test (experimenting).

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Lesson/Activity	Grades K - 4 Science Standards
Plan to Fly There (97-106)	In early years, students develop simple skills, such as how to observe, measure, cut, connect, switch, turn on and off, pour, hold, tie, and hook. Beginning with simple instruments, students can use rulers to measure the length, height, and depth of objects and materials; thermometers to measure temperature; watches to measure time; beam balances and spring scales to measure weight and force; magnifiers to observe objects and organisms; and microscopes to observe the finer details of plants, animals, rocks, and other materials. Children also develop skills in the use of computers and calculators for conducting investigations.
Plan to Fly There (97-106)	Student abilities should include oral, written, and pictorial communication of the design process and product. The communication might be show and tell, group discussions, short written reports, or pictures, depending on the students' abilities and the design project.
We Can Fly, You and I: Interdisciplinary Learning	In early years, students develop simple skills, such as how to observe, measure, cut, connect, switch, turn on and off, pour, hold, tie, and hook. Beginning with simple instruments, students can use rulers to measure the length, height, and depth of objects and materials; thermometers to measure temperature; watches to measure time; beam balances and spring scales to measure weight and force; magnifiers to observe objects and organisms; and microscopes to observe the finer details of plants, animals, rocks, and other materials. Children also develop skills in the use of computers and calculators for conducting investigations.
We Can Fly, You and I: Interdisciplinary Learning	Humans depend on their natural and constructed environments. Humans change environments in ways that can be either beneficial or detrimental for themselves and other organisms.
We Can Fly, You and I: Interdisciplinary Learning	Changes in environments can be natural or influenced by humans. Some changes are good, some are bad, and some are neither good nor bad. Pollution is a change in the environment that can influence the health, survival, or activities of organisms, including humans.