

Grade 6 Hands-on activities



Hands-on investigation

Hands-on learning is at the heart of Amplify Science, and is integrated into every unit. For each hands-on activity, clear instructions are provided for the teacher, and materials are included in unit-specific kits.

With Amplify Science, students actively participate in science, acting like scientists and engineers as they gather evidence, think critically, solve problems, and communicate their claims.

This document will walk you through an overview of the materials provided for an entire unit, to give you a sense of the role hands-on investigation plays in the instruction.

Quantity and materials in each kit are subject to change. For current lists of all materials in each kit, please visit amplify.com/science68.

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Table of contents

Grade 6

Metabolism.....	4
Traits and Reproduction.....	6
Thermal Energy.....	8
Ocean, Atmosphere, and Climate.....	10
Weather Patterns.....	12
Earth's Changing Climate.....	14
Earth's Changing Climate: Engineering Internship.....	16
Microbiome.....	18

Metabolism

Through inhabiting the role of medical students in a hospital, students are able to draw the connections between the large-scale, macro-level experiences of the body and the micro-level processes that make the body function as they first diagnose a patient and then analyze the metabolism of world-class athletes. They uncover how body systems work together to bring molecules from food and air to the trillions of cells in the human body.

Materials in this unit



Materials in this unit are packaged in 1 box.

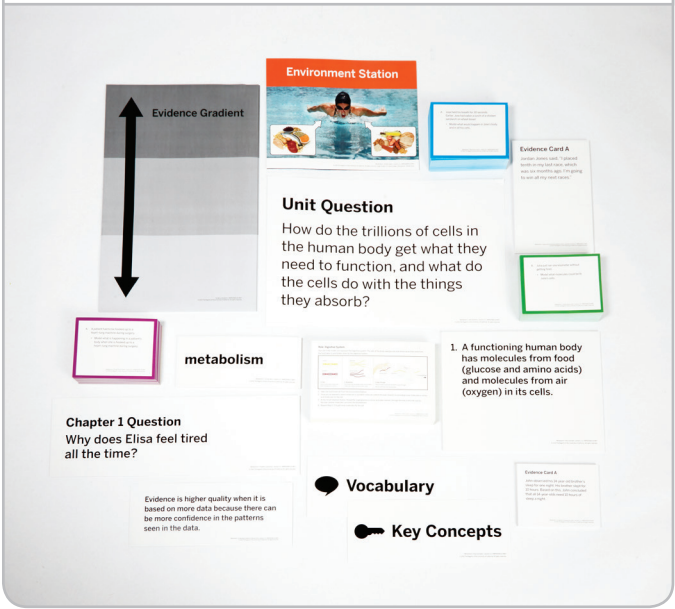
Quantity	Description
50	bags, plastic, with zip*
50 tsp	baking soda*
10	bottles, 60 mL, filled with phenol red*
50 tbsp	calcium chloride*
10	cylinders, graduated, 25 mL
1	measuring spoon, tablespoon
1	measuring spoon, teaspoon
200	pipe cleaners, green
150	pipe cleaners, purple
75	pipe cleaners, yellow
1	stopwatch

* consumable item

Print materials

Each unit's kit includes print materials for the classroom:

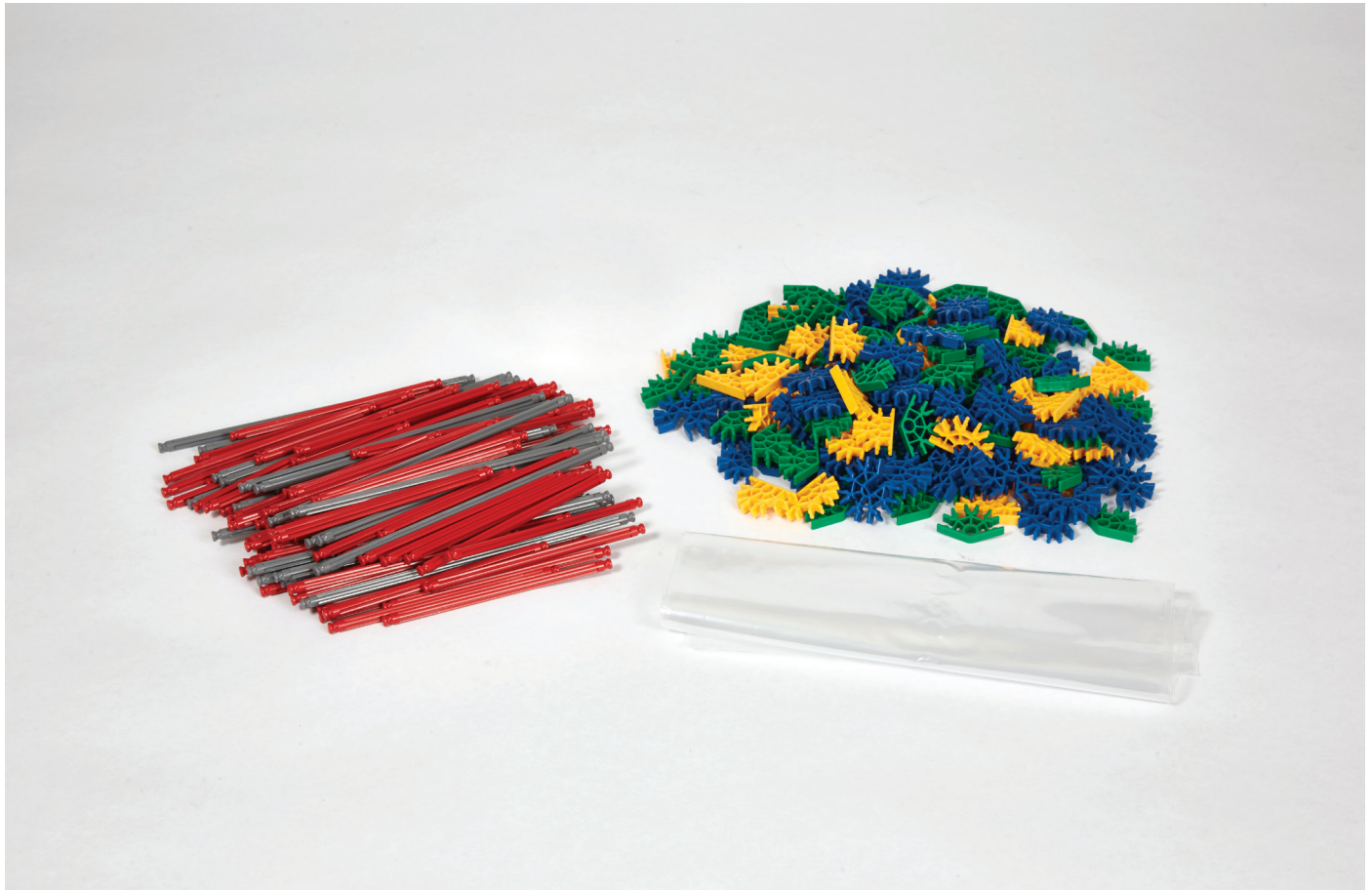
- Chapter Questions
- Key Concepts
- Vocabulary
- Unit Questions
- Premium print materials (card sets, posters, etc.)



Traits and Reproduction

Scientists and engineers are investigating possible ways spider silk can be used for medical purposes, such as for artificial tendons. Students act as student geneticists to investigate what causes variation in spider silk traits. Specifically, they explain why parent spiders have offspring with widely varied silk flexibility traits. They uncover the roles of proteins and genes and the way that genes are inherited.

Materials in this unit



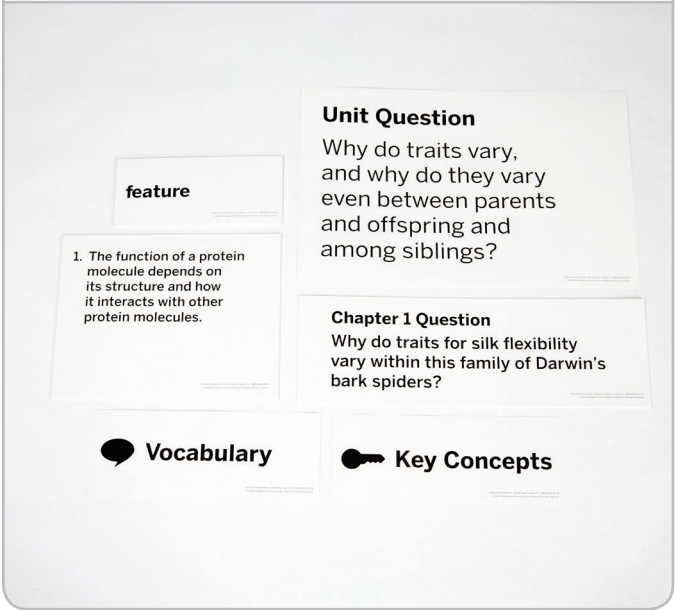
Materials in this unit are packaged in 1 box.

Quantity	Description
1	K'NEX®, intermediate Math and Geometry kit
30	plastic bags with zip, large

Print materials

Each unit's kit includes print materials for the classroom:

- Chapter Questions
- Key Concepts
- Vocabulary
- Unit Questions



Thermal Energy

In their role as student thermal scientists, students work with the principal of a fictional school, Riverdale School, in order to help the school choose a new heating system. They compare a system that heats a small amount of water with one that uses a larger amount of cooler groundwater. Students discover that observed temperature changes can be explained by the movement of molecules, which facilitates the transfer of kinetic energy from one place to another. As they analyze the two heating system options, students learn to distinguish between temperature and energy, and to explain how energy will transfer from a warmer object to a colder object until the temperature of the two objects reaches equilibrium.

Materials in this unit



Materials in this unit are packaged in 1 box.

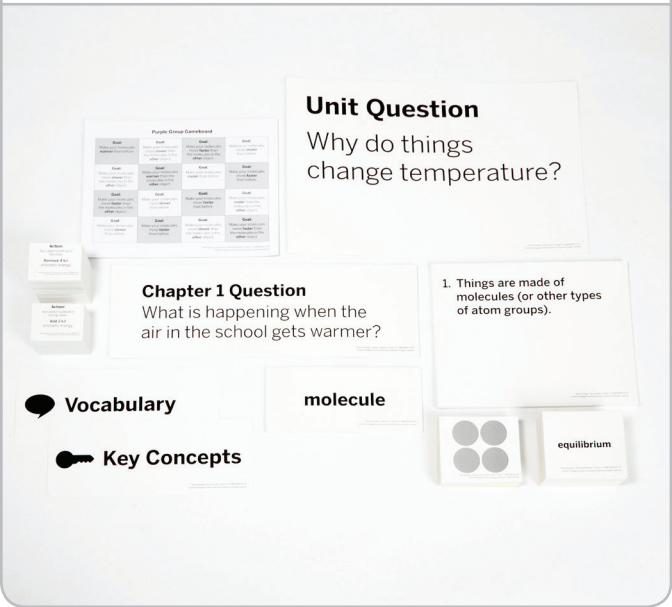
Quantity	Description
2	containers, plastic
1,000	cubes, interlocking
42	cups, plastic, 16 oz.
14	food coloring, sets*
2	graduated cylinders
2	pitchers, plastic
20	thermometers

* consumable item

Print materials

Each unit's kit includes print materials for the classroom:

- Chapter Questions
- Key Concepts
- Vocabulary
- Unit Questions
- Premium print materials (card sets, posters, etc.)



Ocean, Atmosphere, and Climate

Students act as student climatologists helping a group of farmers near Christchurch, New Zealand, figure out the cause of significantly colder air temperatures in New Zealand during the El Niño climate event. To solve the puzzle, students investigate what causes regional climates. They learn about energy from the sun and energy transfer between Earth's surface and atmosphere, ocean currents, and prevailing winds.

Materials in this unit



Materials in this unit are packaged in 2 boxes.

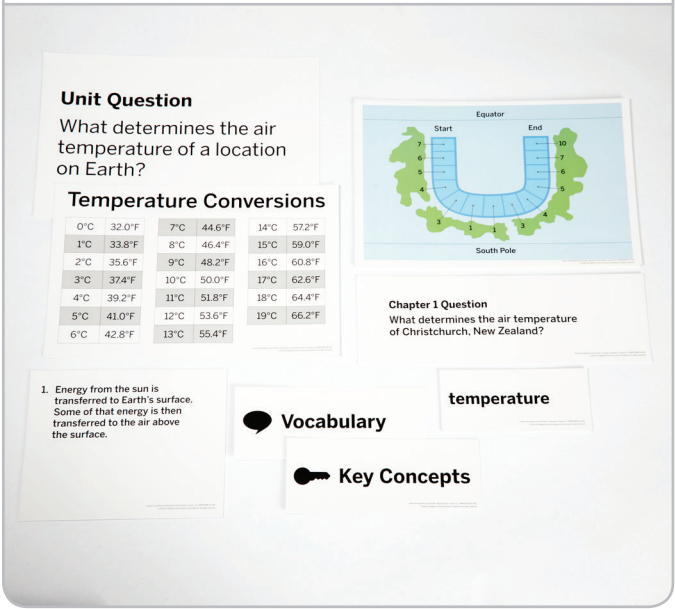
Quantity	Description
14	bags, plastic with zip
1	clamp-on lamp
20	cups, foam, 8 oz.
2	cups, plastic, 9 oz.
20	lids, plastic
1	lightbulb, incandescent, 150 watt
1	pepper shaker*
14	probability cubes (dice)
1	ring stand
6	rocks, black
14	stickers, small, white, circular
201	straws*
11	tanks, plastic
20	thermometers
1500	tokens, yellow

* consumable item

Print materials

Each unit's kit includes print materials for the classroom:

- Chapter Questions
- Key Concepts
- Vocabulary
- Unit Questions
- Premium print materials (card sets, posters, etc.)



Weather Patterns

Weather is a complex system that affects our daily lives. Understanding how weather events, such as severe rainstorms, take place is important for students to conceptualize weather events in their own community. Students play the role of student forensic meteorologists as they discover how water vapor, temperature, energy transfer, and wind influence local weather patterns in a fictional town called Galetown. They use what they have learned to explain what may have caused rainstorms in Galetown to be unusually severe in recent years.

Materials in this unit



Materials in this unit are packaged in 1 box.

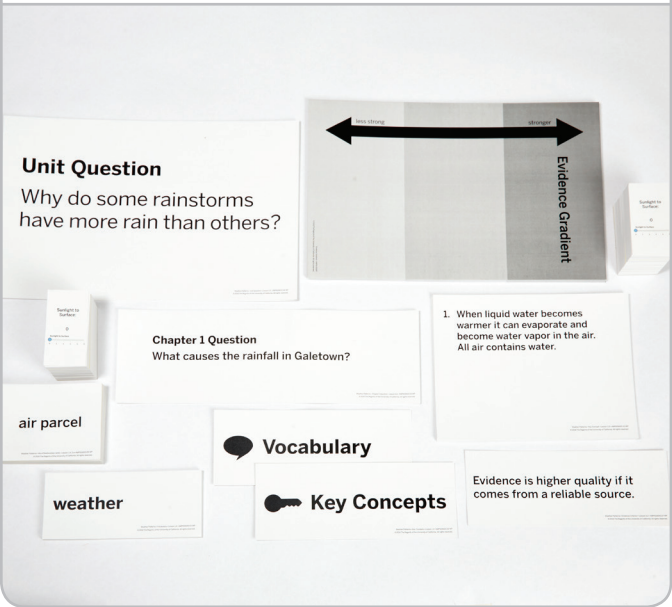
Quantity	Description
100	bags, plastic with zip*
30	dropper tips
1	dry cleaner bag, plastic*
20	straws*
20	syringes

* consumable item

Print materials

Each unit's kit includes print materials for the classroom:

- Chapter Questions
- Key Concepts
- Vocabulary
- Unit Questions
- Premium print materials (card sets, posters, etc.)



Earth's Changing Climate

In the role of student climatologists, students investigate what is causing ice on Earth's surface to melt in order to help the fictional World Climate Institute educate the public about the processes involved. Students consider claims about changes to energy from the sun, to the atmosphere, to Earth's surface, or in human activities as contributing to climate change.

Materials in this unit



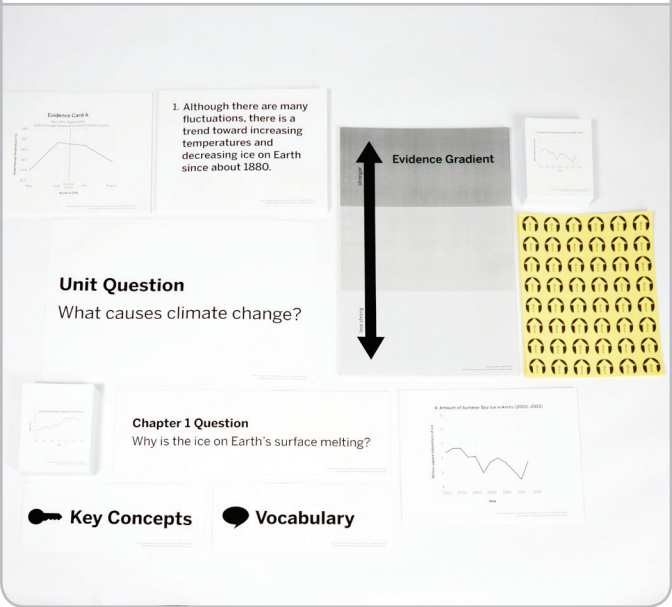
Materials in this unit are packaged in 1 box.

Quantity	Description
21	bags, plastic, with zip
420	energy token cards
640	paper clips

Print materials

Each unit's kit includes print materials for the classroom:

- Chapter Questions
- Key Concepts
- Vocabulary
- Unit Questions
- Premium print materials (card sets, posters, etc.)



Earth's Changing Climate: Engineering Internship

Students act as civil engineering interns to design a plan to modify a city's roofs in order to reduce the city's impact on climate change. These plans must meet three design criteria: 1) reducing impact on the climate; 2) preserving the city's historic character; and 3) minimizing costs. Students focus on the practice of isolating variables in planning and conducting tests to deepen their understanding of climate change; students also learn about the cause-and-effect mechanisms involved as changes to albedo and changes to combustion of fossil fuels affect climate.

Materials in this unit



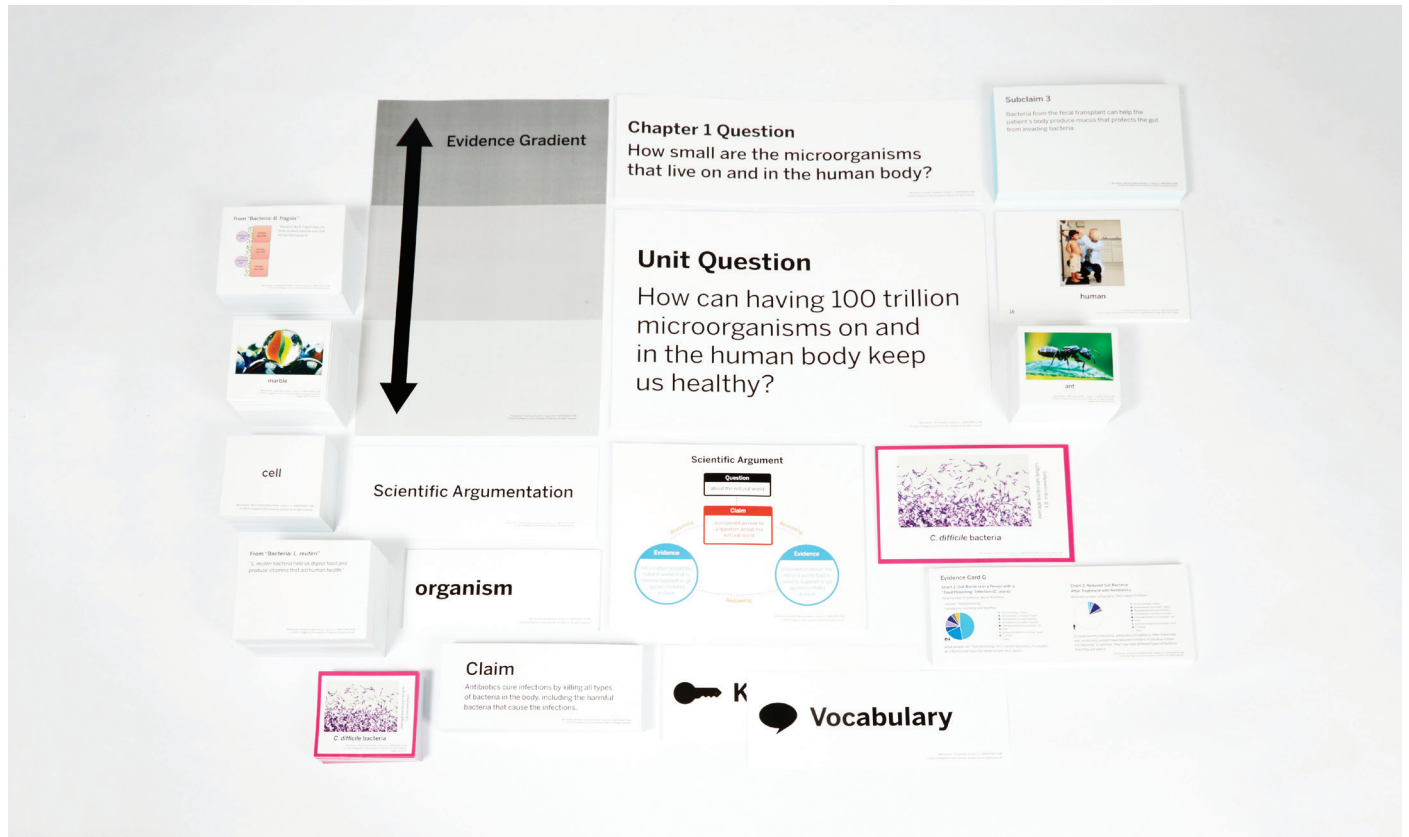
Materials in this unit are packaged in 1 box.

Quantity	Description
2	cables with alligator clips
1	clamp-on lamp
1	fan blade
10	felt, black, pieces
5	light meters
1	lightbulb, 60 watt
1	motor
10	page protectors, glossy
1	solar panel

Microbiome

There is evidence to suggest that the approximately 100 trillion bacteria living on and in the human body may correlate to many different health conditions. Further, altering one's microbiome can result in altering one's health for better or worse. Most notably, a treatment known as a fecal transplant — a transplant that involves using microorganisms from one person's healthy gut microbiome to cure another person who is suffering from a potentially deadly infection — has been under review. Students take on the role of student researchers as they work to figure out why a fecal transplant cured a patient suffering from a C. difficile infection.

Materials in this unit



Materials in this unit are packaged in 1 box.

Quantity	Description		
20 sets	Antibiotics Claim and Relevant/Irrelevant Headers (3 cards/set)	19	Scale cards, large
20 sets	Antibiotics Evidence cards (Cards A-F) (10 cards/set)	20 sets	Scale cards: Set #1 (16 cards/set)
20	Antibiotics Evidence cards (Cards G)	20 sets	Scale cards: Set #2 (3 cards/set)
3	Argumentation Sentence Starters cards	1	Scientific Argument Diagram
20 sets	Bacteria Evidence cards (10 cards/set)	1	Scientific Argumentation Label
2	Bacteria Evidence cards, large	1	Scientific Argumentation Purpose
1	Bacteria Evidence Subclaim 2, large card	1	Unit Question card
20 sets	Bacteria Evidence Subclaims cards (2 cards/set)	11	Vocabulary cards
2	Chapter Questions cards	20 sets	Word Relationships cards (6 cards/set)
1	Components of a Written Scientific Argument card		
2	Evaluating Evidence Criterion cards		
1	Evaluating Evidence Label		
1	Evidence Gradient cards		
20	Evidence Gradient sheets		
2	Key Concepts and Vocabulary headers		
10	Key Concepts cards		
1	Reasoning Tool		

Go to **amplify.com/science68**
for a list of all materials in each kit.

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