Grade 4 Teacher-Supplied Materials: Fast Track

Module 1: Egg Racers				
Material	How Material Is Used	Quantity	Driving Question	Fast Track Lesson
Poster paper	Used to make the Science Tool poster	1 sheet	1	1
	Used to make the academic word wall and the Achor Phenomenon chart	2 sheets	1	2
Wooden skewers	Used as model car axles	1 pack of 34	1	1
Stopwatch	Used for timing across multiple modules and activities	1	2	2, 3
Glue	Used to create model cars for the Egg Crash Challenge	1 per team	4	1
Scissors	Used to build model cars	1 pair per team	1	1
			4	1
Rulers	Used to build model cars	1 per team	1	1
Glue gun	Used in Model Car lab	1	1	1
		1	2	2
Glue sticks	Used in Model Car lab	1 pack of 20	1	1

		1 pack of 20	2	2
Toy cars	Used in station 1 of Energy lab	2	1	3
		2	2	1
Tape	Used to build model cars	1 roll	4	1
Cleaning products (dish soap, paper towels, etc.)	Used to clean up mess if eggs break	1 bottle	4	1, 2, 3
Shallow, lightweight cardboard box or box lid	Used for the body of the model cars	1 per team	1	1
Materials to create safety features for model cars (e.g., straws, cardboard, paper, packing peanuts, egg cartons)	Used to build safety features for the model cars	A range of materials per team	4	1
Craft materials (e.g., paint, markers, construction paper, colored pencils, tape)	Used to build model cars for the Egg Crash Challenge	A range of materials per team	1	1
Books/binders to build ramps	Used to create two small ramps	4–6	1	3
			2	1
			3	2

			4	1, 2, 3
Chair with wheels	Used as an example during discussion on forces	1	1	3
Mugs with a diameter of 8–10 cm (or other round items for drawing around)	Used to draw around to create model cars	1 per team	1	1
Small wooden sticks	Used in Rubber Band–Propelled Car lab	1 pack of 30	2	2
Masking tape	Used to mark out racetrack	1 roll	2	3
		1 roll	3	2
Objects for model cars to collide with (e.g., paper cups, plastic bottles, cardboard, books, foam pad, building blocks to act as a wall)	Used in collision tests	1 object per team	3	2
Materials to add mass to collision objects (e.g., marbles, water, sand)	Used in collision tests	A variety per team	3	2
Raw eggs	Used as part of a model that protects the egg from breaking	1 per team	4	1, 2
Camera (phone, tablet, etc.)	Used to document evidence of collisions	1	3	2

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Module 2: Sparks Energy, Inc.				
Material	How Material Is Used	Quantity	Driving Question	Fast Track Lesson
Poster paper	Used to make the academic word wall	1 sheet	1	1
Black construction paper	Used in Meltdown lab	4 sheets	1	2
White construction paper	Used in Meltdown lab	4 sheets	1	2
Aluminum foil	Used in Meltdown lab	1 roll	1	2
Stopwatch	Used for timing across multiple modules and activities	1	1	2
Computer or tablet	Used to display the interactive	1 per pair	1	3, 4
Safety goggles (student size)	Used in multiple lessons to follow safety recommendations	3 packs of 10 = 30 pairs	1	2
		3 packs of 10 = 30 pairs	2	2, 3
Wire cutters	Used in Lighting a Bulb lab	1 pair	2	2
Electrical tape	Used in Electricity Generation labs	1 roll	2	2, 3, 6

Masking tape	Used in Electricity Generation labs	1 roll	2	3, 4, 5, 6
Rubber bands	Used in Wind Turbine models	1 pack of 40	2	4
Paper clips	Used in Wind Turbine models	1 box of 100	2	4, 5
Cardstock	Used in Wind Turbine models	2 packs of 10	2	4, 5
Scissors	Used to build a turbine and turbine blades	1 per pair	2	4, 5
Rulers	Used to build a turbine and turbine blades	1 per pair	2	4
Trays **Note:** The tray should be large enough to hold an assembled wind turbine at the end of the lesson.	Used to hold materials for hands-on investigations	1 per pair	2	4
Clear tape	Used to secure lids to the ice cube containers	1 roll **Note:** Needs to be enough to secure lids to 16 containers	1	2
Sources of wind (e.g., electric fans or hair dryers)	Used to test the turbines with a voltmeter	2 (1 per testing session)	2	4, 5, 6

Ice chest and freezer packs	Used to make ice cubes	1	1	2
Ice cubes **Note:** All ice cubes must be similar in size.	Used to observe how energy from the Sun can heat up and melt ice cubes	2 per team **Note:** More might be needed if it is an especially sunny day	1	2

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Module 3: Time-Traveling Tour Guides				
Material	How Material Is Used	Quantity	Driving Question	Fast Track Lesson
Computer or tablet	Used to display the interactive	1 per pair	1	1
Poster or chart paper	Used to create an Anchor Phenomenon chart	1 sheet	1	2
Marker	Used to write on the Anchor Phenomenon chart	1	1	2
Tape or pushpins	Used to display images for the Grand Canyon presentation	A few pushpins or pieces of tape per pair	3	3

Trays	Used to organize investigation materials	1 per pair	2	1
	Used to hold a thin layer of sand	2 per team	4	1
	Used to organize investigation materials	1 per team	4	2, 4
Masking tape	Used to secure cards to cups	1 roll	2	1
Paper towels	Used in the teacher demonstration to show how layers form on the ocean floor	2 sheets	2	1
Bread knife	Used to prepare the bread slices	1	2	3
Large foil trays	Used to build Stream Tray Model	10	3	1
Coffee filter papers	Used to build Stream Tray Model	3 packs of 40	3	1
Large trash bags	Used for waterproofing	8	3	1
Utility knife	Used to prepare cardboard boxes	1	4	2
Fossil cards	Used for fossil activity (must be printed from the link provided)	15 sets	2	1
Animal gummies	Used to represent material in layers on the ocean floor	1 large bag	2	1
Clear plastic cups	Used in the Stratigraphy activity	2 packs of 10	2	1
Plastic sheeting or garbage bags	Used to cover surfaces to protect from water	Enough to cover surfaces	3	1, 2
			4	4

Gloves	Used to handle ice	2 per team	4	1
Safety goggles (student size)	Used in multiple lessons to follow safety recommendations	3 packs of 10 = 30 pairs	3	1, 2
		3 packs of 10 = 30 pairs	4	1, 2, 3, 4, 5
Safety goggles (adult size)	Used in multiple lessons to follow safety recommendations	1 pair	3	1, 2
		1 pair	4	1, 2, 3, 4, 5
Plastic funnels	Used in Stream Tray lab	8	3	1
Scrapers	Used in Stream Tray lab	8	3	1
Bulletin board or large poster board	Used to display images for the Grand Canyon presentation	1	3	3
Index cards	Used in Tour Guide activity	1 pack of 100	3	3
Bendable drinking straws	Used in Wind Erosion lab	1 pack of 40	4	2, 3
Cardboard boxes with lid	Used in the sand dunes activity	1 per team	4	2, 3
Colored paper	Used to write a sentence stem and then display it on an expo wall	1 small piece per student	3	3
2 L bottles	Used for students' stream tray models	1 per team	3	1, 2
			4	4

1 pint milk cartons	Used to make ice blocks and sand/gravel ice blocks	2 per team	4	1
Blocks of ice	Used in the terrain activity when they are dragged against two different surfaces	8 plain ice, 8 with sand/gravel	4	1
3 different types of bread (e.g., white, wheat, rye)	Used in the teacher demonstration to show how layers form on the ocean floor	2 slices of each type	2	1
Books or binders **Note:** These need to be wrapped in a plastic bag to protect them from the water.	Used to tilt the steam tray models	1–2 per team	3	1, 2
Cloth towels, paper towels, or newspapers	Used to clean up spills	1 roll	3	1, 2
			4	4
Heavy books	Used to push down on the model in the teacher demonstration	2	2	1
Large plastic tubs or buckets	Used to collect runoff during the stream tray investigation	1 per team	3	1, 2
			4	4
Materials requested by students for their models (e.g., gravel, pebbles, clay, toothpicks, spray bottles)	Used to update models in line with students' investigation plans	Quantity and type of materials will depend on what teams request	3	2
Newspaper	Used in the sand dune activity	1 per team	4	2, 3

Cotton balls	Used in Wind Erosion lab	1 pack of 300	4	3
Plastic spoons	Used in Stream Tray lab	2 packs of 16	4	4
Straight drinking straws	Used in Stream Tray lab	1 pack of 100	4	4
Objects to represent buildings (e.g., toy buildings or heavy blocks of an appropriate size)	Used in the sand dune activity	1 per team	4	3, 4
Water	Used during the stream tray investigation and to fill 2 L bottles	1	3	1, 2
			4	4

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Module 4: Earthquake Engineering				
Material	How Material Is Used	Quantity	Driving Question	Fast Track Lesson
Safety goggles (adult size)	Used in multiple lessons to follow safety recommendations	1 pair	1	1
		1 pair	3	2

		1 pair	6	2
Masking tape	Used in Modeling Waves and Earthquake-Resistant Design labs	1 roll	1	2
		1 roll	6	2
Poster or chart paper	Used to create the Questions about the Yearly Rate of Earthquakes in Oklahoma chart	1 sheet	2	2
	Used to create a T-chart	1 sheet	5	1
Computer or tablet	Used to display the interactive	1 per team	1	2
		1 per pair	2	1, 2
Meter sticks	Used for measurements in the Making Waves and Testing Structures labs	10	1	2
		10	3	2
Mini marshmallows	Used to build structures	20 per team	3	1
	Used to test the effects of four forces	4 per student	3	2
	Used as a building material	8 per pair	3	2
	Used as an Engineering Design Challenge building material	25 per team	4	1
			6	1

Glue	Used as an Engineering-Design Challenge building material	1 bottle per team	4	1
			6	1
Safety goggles (student size)	Used in multiple lessons to follow safety recommendations	3 packs of 10 = 30 pairs	3	1, 2
		3 packs of 10 = 30 pairs	4	3
		3 packs of 10 = 30 pairs	6	1, 2
Pipe cleaners	Used in Earthquake Structures Lab	4 packs of 100 = 400	3	2
		4 packs of 100 = 400	4	1
		4 packs of 100 = 400	6	1
Straws	Used in Earthquake Structures Lab	400+	3	2
		400+	4	1
		400+	6	1
Scissors	Used as an Engineering Design Challenge building material	1 pair per team	4	1
Clear tape	Used to build structures	1 roll per pair	3	2

	Used as an Engineering-Design Challenge building material	1 roll per team	4	1
			6	1
Trays	Used to hold materials for hands-on investigations	1 per team	3	1
			3	2
		1 for the demonstration, plus 1 per team	3	2
	Used as part of the earthquake simulator and testing station	1	4	1
			6	2
Craft sticks	Used in Testing Earthquake-Resistant Buildings lab	4 packs of 250 = 1,000	4	1
		4 packs of 250 = 1,000	6	1
Aluminum foil	Used in Testing Earthquake-Resistant Buildings lab	1 roll	4	1
		1 roll	6	1
Toothpicks	Used in Testing Earthquake-Resistant Buildings lab	1 box of 250	4	1
		1 box of 250	6	1

Paper clips	Used in Testing Earthquake-Resistant Buildings lab	2 boxes of 100 = 200	4	1
		2 boxes of 100 = 200	6	1
Pencils	Used as an Engineering-Design Challenge building material	1 per student	4	1
			6	1
Stopwatch	Used for timing across multiple modules and activities	1	4	3
		1	6	2
Colored pencils or highlighters	Used to annotate close reading	A few colors per student	5	1
Metric ruler	Used to measure the heights of structures	1 per team	4	1
Clear plastic tub **Note:** Needs a surface area of 20 x 30 cm	Used to demonstrate waves in water	1	1	1
Marker	Used to write on the Anchor Phenomenon chart	1	1	1
Chart paper	Used for the Anchor Phenomenon chart	1 sheet	1	1
	Used to create a chart that captures Questions about the Yearly Rate of Earthquakes in Oklahoma	1 sheet	2	2

Spaghetti	Used for building structures	20 pieces per team	3	1
	Used to test the effects of these four forces	4 pieces per student	3	2
	Used as a building material	20 pieces per pair	3	2
	Used as an Engineering-Design Challenge building material	30 pieces per team	4	1
			6	1
Paper	Used as an Engineering-Design Challenge building material	20 sheets per team	4	1
			6	1
Scale	Used to weigh out sand	1	3	2
	Used to weigh structures		4	1
			6	2
Camera (phone, tablet, etc.)	Used to photograph the teacher's structure to show in a demonstration	1	4	1
	Used to photograph structures before testing		6	2
Newspaper	Used to build the second iteration of newspaper towers	1 per pair	3	2

	Used as an Engineering-Design Challenge building material	1 per team	4	1
		1 per team	6	1
Graham crackers	Used to demonstrate compression and tension	4	3	2
Rock **Note:** Must be big enough to create waves when dropped into a tub of water	Used to demonstrate waves in water	1	1	1
Seismometer 6 app (installed on smartphone or tablet)	Used to demonstrate how earthquakes are measured	1	1	3
	Used when testing structures		6	2
Water	Used to demonstrate waves in water	Enough to almost fill the clear plastic tub	1	1
Small prize for the winning team	Used to give to the team that spent the least on a structure that survived the tests	1	4	1
	Used to give to the team that spent the least on a structure that did not collapse	1	6	2

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Module 5: Super Survivors				
Material	How Material Is Used	Quantity	Driving Question	Fast Track Lesson
Poster or chart paper	Used for the Plant Structures KLEW chart, Anchor Phenomenon chart, and academic word wall	3 sheets	1	1
	Used to create the Animal Structures KLEW chart	1 sheet	1	3
	Used to create a simple line drawing of a flower with two leaves and six petals	1 sheet	2	2
	Used to create a Long-Distance Communication graphic organizer	1 sheet	5	1
Chopsticks	Used in Testing Bird Bills lab	1 pair	1	4
Small measuring cup	Used in Testing Bird Bills lab	1	1	4

Pliers	Used in Testing Bird Bills lab	1 pair	1	4
Sponges	Used in Testing Bird Bills lab	4 packs of 2 = 8	1	4
Narrow jars	Used to hold water for Plant Dye experiment and Testing Bird Bills lab	8	1	1, 4
Marker pen	Used to write on the Anchor Phenomenon chart	1	1	1
Paper plates	Used in Dissecting Flowers lab	15	1	2
Toothpicks	Used in Dissecting Flowers lab	1 box of 250	1	2
Stopwatch	Used for timing across multiple modules and activities	1	1	3
		1	4	2
Cardstock	Used to cover a hole in a cardboard box	1 sheet	3	2
Glue	Used to build communication devices	1 bottle per team	6	1
Scissors	Used to represent a bird's bill	1 pair per team	1	4
	Used to cut the cardboard of the prairie dog models	1 pair	3	1
	Used to build communication devices	1 pair per team	6	1
Ruler	Used to figure out the correct answer for	1 per team	4	1

	an optical illusion			
Trays **Note:** The trays should be large enough to hold a range of materials that represent 8 different types of bird foods and building materials for students' communication devices.	Used to hold materials used in hands-on investigations	1 per team	1	2, 4
			6	2
Tape	Used to secure a pom-pom inside a cardboard box	1 roll	3	1
	Used to secure a ball of foil and an image of a bear inside a cardboard box		3	2
Penlights	Used in Prairie Bog Burrow Lab	8	3	2
Sticky notes **Note:** Three different colors needed	Used to take notes and add vocabulary to a chart	1 pack of each color per pair	1	1, 5
Masking tape or sticky labels	Used to wrap around the top of a coil in the middle of a spring toy so that it looks like a flag	1 small piece per team	5	4
Pencils	Used with modeling clay shaped around it to represent a small mammal	1 per team	1	4
Colored pencils or highlighters	Used to figure out the correct answer for an optical illusion	A few different colors per team	4	1
Metric rulers	Used to test students' reaction times	1 per pair	4	4

Note: Needs to be long enough for students to grab when their partner drops the ruler				
Shallow trays or pans **Note:** Need to be strong, waterproof, and able to hold a selection of craft/investigation materials	Used at investigation stations, half filled with water	1 per team	5	3
Red food coloring	Used in the stems investigation	1 bottle	1	1
Calculator	Used to calculate average reaction times	1 per pair	4	4
Brown pom-poms	Used to model Prairie Dog in Burrow lab	10+	3	1
Lidded cardboard boxes **Note:** Students could bring in shoeboxes.	Used to build the prairie dog models	1 per team	3	1
	Used to investigate visibility	1	3	2
Water	Used in the stems investigation	Enough to fill 8 jars	1	1, 2
White carnations or daisies (with stems)	Used in the stems investigation	3	1	1
Bucket of water **Note:** Large enough to store flowers	Used to store the flowers to keep them fresh	1	1	2
Cucumber	Used to represent large fish in the Bird	1	1	4

Note: Cut into thick slivers	Bills investigation			
Rice	Used to represent insects in a log	1 cup	1	4
Drum	Used for a music lesson alongside a sound meter app	1	5	2
Flowers **Note:** One flower with a simple structure, such as a ranunculus, simple rose (5 petals), or tomato flower, and one flower that is visibly different from the other (e.g., tulip, poppy, sunflower). Make sure that the flowers have all of their organs intact. For instance, florists will commonly remove the anthers of lilies to prevent staining from pollen.	Used to examine and observe differences	2 different kinds of flowers per pair	1	2
Small containers for sand **Note:** Any container (e.g., plastic containers, bowls, pans)	Used with pieces of string buried in the sand to replicate invertebrates in sand	1 per team	1	4
Small containers for water **Note:** Any container (e.g., plastic containers, bowls, pans)	Used to represent a pond	1–3 per team	1	4
Small and light granules or beads (e.g., sea salt, granulated sugar, sanding sugar, tapioca pearls, polystyrene beads)	Used to investigate sounds and solids	A handful per team	5	3

Smartphone or other device loaded with a sound meter app	Used to measure sound waves	1	5	2
Tea leaves	Used to float in a container of water to replicate a floating pond plant	A handful per team	1	4
Walnuts, almonds, or other nuts in shells **Note:** If you have students with nut allergies, omit the seed bird food for this lesson. Alternatively, provide cascarones (confetti eggs).	Used to replicate seeds	A handful per team	1	4
Model-building materials (e.g., pieces of cardboard, cardboard boxes, flexible tubes, mirrors, clay, clothespins, colored paper, craft sticks, cups, toy motors, batteries, electrical tape, flashlights, foil, glue, 1.5 V light bulbs, musical instruments, newspaper, whistles, paper clips, pencils, pipe cleaners, rubber bands, scissors, spring toys, straws, string, tape, glue, tuning forks)	Used to build communication devices	A variety per team	6	1, 2