

Pathways In Science

9th grade Physical Science lab and materials listing - cross reference with Science Scope for Physical Science in high school

1. Chemistry - Chapter 1

- * RECORDKEEPING, p. 19
 - * materials to make a peanut butter & jelly sandwich
 - * CHANGE OF STATE, p. 25
 - * chocolate bar
 - * aluminum foil
 - * washpan with hot water
 - * CHANGES IN MATTER I, p. 28
 - * sugar cube
 - * hammer
 - * old spoon
 - * candle
 - * CAUSING A CHEMICAL CHANGE - MAKING IRON OXIDE, p. 42
 - * steel wool pad
 - * glass jar
 - * clay
 - * shallow pan with water
 - * crayon
 - * CHAPTER REVIEW
 - * TEST 1 - MATTER AND DENSITY
 - * TEST 2 - PHYSICAL AND CHEMICAL CHANGES
-

2. Physics - Chapter 2

- * ANALYSIS OF FORCES ACTING ON A BALANCE, p. 67
 - * a balance (suggestions are given for making a balance using a ruler atop a pencil)
 - * 2 quarters
- * ENERGY TRANSFORMATION, p. 69
 - * nail
 - * board
 - * hammer
- * REFLECTION AND MIRRORS, p. 73
 - * flashlight
 - * mirror
 - * protractor
 - * posterboard
 - * clay

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- * scissors
- * TRANSLUCENCY AND DIFFUSION OF LIGHT, p. 75
 - * brown paper bag
 - * notebook paper
 - * waxpaper
 - * butter
- * MAKING A PHOTOMETER, p. 77
 - * two blocks of paraffin wax
 - * aluminum foil
 - * rubber band
 - * candles
 - * light source of unknown strength
 - * ruler
- * TRANSPARENCY AND REFRACTION, p. 78
 - * two glass containers, one of which fits easily inside the other
 - * water
 - * corn syrup
 - * vegetable oil
 - * glass rod (or pencil)
- * TRANSPARENCY AND LENSES, p. 83
 - * unflavored gelatin
 - * pan
 - * sharp knife
 - * flashlight
 - * comb
 - * posterboard
 - * copy of p. 84 to use as a pattern for cutting
- * MEASURING HEAT: TEMPERATURE OF WATER, p. 90
 - * one cup measuring cup
 - * water
 - * ice
 - * pot
 - * heat source
 - * stirring spoon
 - * clock or timer
 - * thermometer
- * MEASURING HEAT, USING HUMAN SENSORS, p. 91
 - * three bowls

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- * hot water
- * warm water
- * ice water
- * thermometer
- * OBSERVING CONVECTION, p. 94
 - * food coloring
 - * distilled water
 - * canning jar
 - * ice cubes
- * OBSERVING CONDUCTION AND INSULATION, p. 96
 - * 2 styrofoam cups
 - * thermometer
 - * water
 - * ice
 - * 1 glass or metal cup
 - * 8 quarters
 - * heat source
 - * pot
- * OBSERVING RADIATION, p. 97
 - * light source
 - * 2 empty soda cans
 - * thermometer
 - * black paint
 - * water
- * PROBLEMS: p. 101
 - * boiling water
 - * thermometer
 - * salt
- * SLINKY, p. 105
 - * slinky
- * CIRCUITS: MAKING AN ELECTROSTATIC CHARGE, p. 110
 - * balloon
 - * hair
 - * tv screen
 - * running water from a faucet
- * CIRCUITS: MAKING AN ELECTROMAGNET, p. 112
 - * 2 nails
 - * C-cell battery

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- * bell wire (22 to 30 gauge)
- * needlenose pliers with wire cutter built in
- * MAKING A CIRCUIT BOARD, p. 117
 - * 2 C-cell batteries
 - * battery holder (optional)
 - * bell wire
 - * board
 - * 3 light bulbs: the type used in a 2-cell flashlight
 - * light bulb sockets
 - * 6 nails: no. 6 size
 - * needlenose pliers
 - * screws
 - * rubber band
 - * tacks
- * MAKING A FLASHLIGHT, p. 118
 - * battery: C or D cell
 - * light bulb & socket
 - * pliers
 - * tape
 - * wire
- * MAKING A FUSE IN A LIGHT CIRCUIT, p. 120
 - * bell wire
 - * board
 - * C-cell battery
 - * gum wrapper (paper carefully removed) or very thin aluminum foil
 - * light bulb type used in a 2-cell flashlight
 - * needlenose pliers with wire cutter built in
 - * 2 tacks
 - * tape
- * CHAPTER REVIEW
- * TEST 3 - WORK, FORCE, AND ENERGY
- * TEST 4 - LIGHT
- * TEST 5 - HEAT & SOUND
- * TEST 6 - ELECTRICITY

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- * DEMONSTRATING LIFT AND AIR PRESSURE, p. 137
 - * paper
 - * scissors
 - * CONTROL SURFACES ON A Balsa GLIDER, p. 141
 - * balsa wood glider
 - * cardstock
 - * CENTER OF GRAVITY SHIFT ON Balsa OR CARDSTOCK GLIDER, p. 145
 - * balsa wood glider OR...
 - * cardstock copy of p. 144 - assemble pattern parts to make a glider
 - * pennies or paperclips
 - * CHAPTER REVIEW
 - * TEST 7 - AERO ENG
-

* Geology - Chapter 4

- * MODEL BUILDING - THE PARTS OF PLANET EARTH, p. 157
 - * 5 different colors of clay
 - * sharp knife
- * THE STRENGTH OF CARBONATED WATER, p. 163
 - * tooth (obtain a tooth you have lost)
 - * jar
 - * pH paper
 - * carbonated water
- * TESTING THE pH OF YOUR WATER, p. 164
 - * pH paper strips
 - * bottles
 - * paste/glue
- * SET UP A GEOLOGY LAB: p. 176
 - * an egg carton (or a container to collect and separate rocks)
 - * vinegar
 - * piece of white tile (1" x 1")
 - * penny
 - * small piece of glass (1" x 1")
 - * index cards
 - * pen
 - * steel file
 - * magnet

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* CHAPTER REVIEW

* TEST 8: EARTH AND ITS FORCES

* TEST 9: MAPS AND ROCKS

* Space and Our Solar System - Chapter 5 - this chapter is somewhat juvenile (around a 5th - 6th grade level). Complete only lab assignments and activities.

* PLANETARY CHART, p. 194 - 195

* Atlas of astronomy or space

* OXYGEN SUPPLY, p. 199

* Elodea (algae available from a pet store)

* 2 jars - one must fit inside the other

* funnel

* water

* toothpick

* lighter

* MODEL BUILDING: THE PARTS OF THE MOON, p. 206

* 5 colors of clay

* sharp knife

* THE PHASES OF THE MOON, p. 207

* flashlight

* lamp without shade

* globe

* tennis ball

* drawing paper

* MODEL BUILDING: A COMPASS, p. 211

* magnet

* needle

* pot pie pan

* water

* cork or floating object

* THE MAGNETIC FIELD OF A MAGNET, p. 212

* iron filings

* magnet

* drawing paper

* blank paper

* METALS AND THEIR CHARACTERISTICS, p. 214

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- * aluminum (foil)
- * copper (scouring pad or penny)
- * iron (nail)
- * lead (fishing weight)
- * silver (coin)
- * zinc (foil from a battery)
- * circuit board from chapter 2
- * magnet
- * water in cup with ice
- * piece of wood (ice cube size)
- * TERRAFORMING EXERCISE: COMPOSTING, p. 217
 - * box
 - * sand
 - * organic refuse
 - * box cover
 - * shovel
 - * thermometer
- * CHAPTER REVIEW
- * TEST 10: TRIP TO THE NEAR PLANETS
- * TEST 11: TRIP TO THE FAR PLANETS

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- * Rocketry - Chapter 6
 - * BALLOON ROCKETS, p. 233
 - * balloon
 - * monofilament fishing line
 - * tape
 - * paper cup
 - * nuts and bolts
 - * stop watch
 - * paper cup
 - * string
 - * NEWTON'S THIRD LAW DEMONSTRATION, p. 237
 - * partner
 - * roller skates or skateboard
 - * BUILDING YOUR OWN ROCKET, p. 240
 - * rocket building kit

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- * LAUNCH YOUR ROCKET, p. 244
- * CHAPTER REVIEW
- * TEST 12: ROCKETS AND THEIR BUILDING