WEEK 1 WATER AND FLUIDS

Oil and Water Don’t Mix or Do They?
- 1/8 cup vegetable or corn oil (approximately)
- 8-12 oz water (any water is fine)
- 1/4 cup molasses (approximately)
- Cotton balls
- Q-tips
- 2 clear glasses - 8 oz capacity or smaller
- 3 small glass jars or containers (8 ounces or smaller, 500-ml clear plastic water bottles also work)
- 3 forks or spoons

Float your Boat Challenge
- A bowl or container that holds water
- Water
- Aluminum foil
- 25 (washed) pennies (or more)
- Pen or pencil
- Sheet of blank paper

Fun with Freezing Water
- Two bottle of water (One of them is a backup)
- Freezer
- Thermometer

Lighting a Light Bulb with a Lemon
- Lemons (Our acid)
  (Recommend 4 however the more you use, the more power can be generated)
- Low voltage LED light bulb
  (you can buy small LED diodes or get one from an old Christmas string light decoration)
- Alligator clips (5 for 4 lemons)
- Galvanized nails (Or zinc)
  (4 or the same number as the number of lemons used)
- Pennies (Or copper)
  (4 or as many as you have of lemons)

Make your Own Slime
- 1/2 cup basic school glue (not washable)
- Food coloring – any color you want!
- 1/2 cup liquid starch
- Mixing bowl
- Plastic spoon

Oil and Water Experiments
- Vegetable oil
- Water
- Dish soap
- Honey
- Clear Bottle
- Food coloring (Red or any color is fine)
- Cooking/vegetable oil
- Anti-Acid (Example: Alka Seltzer tablet or Rolaid )
- Water

Homopolar Motor Activity
- Solid copper wire
- 3 neodymium disc magnets (1/2” x 1/8”)
- AA batteries
- Marker
- Pliers or wire cutters
ACTIVITY MATERIALS CHECKLIST

WEEK 2 CHEMISTRY AND BIOLOGY

Cotton Candy
- Sharp object to poke holes (Nails preferably)
- Soda can cut in half
- Bag of white sugar
- Pot
- Ladle
- Food coloring
- Hot plate or stovetop burner
- Large bowl
- Flat head screw
- Washer
- Nut to secure the screw
- High speed power drill – If the drill spins too slowly, cotton candy will not be made!
- HIGHLY RECOMMENDED: A Bolt, washer, and a long Screw to attach to soda can
- Optional: Bottle of water

Make your Own Batteries from Lemons
- 4 lemons
- Copper wire
- Zinc galvanized nails
- Conductor wire
- 1 plier or wire stripper
- 4 alligator clips
- LED light bulb
- LED Diode

Microbes Around Us
- Agar plate
- Aluminum foil
- Scissor
- Wrapping tape
- Bleach solution
- Hand gloves

Simulating Volcano Lava
- 1 cup of oil
- 1/4 cup of water
- Food coloring
- Glass
- Plastic spoon

Ice Cream in a Bag
- One gallon-sized Ziploc bag
- One quart-sized Ziploc bag
- 1 cup of half-and-half
- 2 tablespoons of granulated sugar
- 1/2 of a teaspoon of vanilla extract
- 3 cups of ice

1/3 of a cup of kosher salt
Any ice cream toppings you want


ACTIVITY MATERIALS CHECKLIST

WEEK 3  ELECTRICITY AND TECHNOLOGY

Messing with Magnetic Fields
• Breadboard (Can purchase Here*)
• Bowl of Water (glass or plastic)
• Bottle Cap
• Wire Cutters
• Wire Strippers
• 22awg copper wire
• 4 AA Batteries
• Battery Holder (Suggestion: take from an old toy)
• Magnet
• Paperclip
• Pencil

Magnetic Force and Torque
Activity 1:
• 2 straight pins
• 2 disc magnets
• 2 drilled popsicle sticks
• a strip of cardboard
• pennies
• scotch tape

Activity 2:
• 1 magnet
• 1 strip of foam with slit in center (in kit)
• plastic or glass container filled with water
• marker (student provides)

Activity 3:
• 1 foam-magnet
• 1 popsicle stick
• 1 magnet, paper ruler
• Scotch tape (in kit)
• Plastic or glass container filled with water
  (student provides)

Activity 4:
• Dritz 3009 Quilting Pins, 1-3/4-Inch, Yellow (500 Count)
• Perfect Stix 4.5" Craft Sticks/Ice Cream Sticks/
  Natural Wood - Box of 1,000 count
• M-D Building Products 2758 M-D o Closed-Cell
  Weather-Strip, 1/2 in W X 17 Ft L X 1/4 in T, White
• WARMBUY 100Pcs Round Magnets for Fridge,
  Office, Dry Erase Board, Refrigerator, Whiteboard, Map
• Printed ruler: https://www.printablerulers.net/pre-
  view/Ruler_15-cm_by_mm

Tesla Coils
• No materials needed

Intro to Coding: Animate your Name
• Computer
• Wi-fi
• Website: http://scratch.mit.edu

Code your Own PONG Game
• Computer
• Wi-fi
• Website: http://scratch.mit.edu
### Elastic Launcher
- 1 or more cotton ball(s)
- 1 single hole puncher
- 1 pair of scissors
- 1 roll of duct tape
- 2 tubes from toilet paper roll
- 2 thin rubber bands
- 1 short (unsharpened) pencil.

### Build your Own Bridge
- Packet of spaghetti
- Bag of marshmallows
- 2 platforms (ex. books, small boxes, or 2 tables)
- Weighted objects (ex. Marbles, toy cars)

### Build your own Prosthetic Finger
- 1 popsicle stick
- 1-2 rubber bands (depending on size)
- 6-8 inches of string
- 1 plastic straw
- Tape
- Scissors

### Build a Drone
- Ruler
- Hot glue, glue or other adhesive
- Various colored pencils, markers, pens, or other coloring utensils
- Various stickers and other artistic decals
- Laser cutting or other advanced machining tool
  (Note: Laser cutter/machining tool is optional - scissors will work)
- 2 Band Aids or a sticky note

### Just a Minute
- Paper
- Pencil or Pen