

INV. 1 ACTIVITY—MIXING SOLIDS TO MAKE GORP

Focus Question: How can you make a homemade recipe of gorp (trail mix)?

We know that a mixture is two or more materials mixed together, and we created different mixtures in class. Can you create a mixture of tasty ingredients to make your own recipe of gorp (trail mix)? What proportions of your ingredients will make the tastiest gorp recipe?

Materials:

- A collection of dry ingredients such as nuts, dried fruits, cereal, etc.
- Measuring cups
- Bowl
- Spoon

Instructions:

1. Collect the dry ingredients you want in your gorp mixture. Try to have at least 3–5 different ingredients for your mixture. (More is ok too.)
2. Use the measuring cups to put in varying amounts of your ingredients into a bowl and mix them with the spoon.
3. Have you and your family taste the gorp. Is there too much of one ingredient or too little of another?
4. Adjust the amounts of your ingredients until your gorp has the taste you like. This may take many different trials.
5. Write down your recipe that includes the different ingredients you used and the final amounts of each ingredient.
6. Take a picture of your gorp and include it with your recipe in your science notebook.

INV. 1 ACTIVITY—MIXING SOLIDS WITH WATER

Focus Question: What happens when you mix solids with water?

Plan and carry out an investigation using some of the materials listed below. You can test other materials if you check with an adult in your home. Record and analyze your results. Then answer focus question 1.

Tools to use

- 4 Clear containers
- 1 Measuring spoon (5 mL or teaspoon)
- 1 Measuring cup
- 4 Stirring spoons

Materials to test

- Flour
- Baking soda
- Corn starch
- Sugar

Suggested procedure

1. Measure 125 mL (or 1/2 cup) room-temperature water into each clear container.
2. Measure one level 5 mL spoon (1 teaspoon) of one of the solid materials and put it into one of the containers of water. Label this container so you remember what it contains.
3. Wipe off the measuring spoon.
4. Continue the procedure until you have a different solid material in the four containers of water.
3. Use a stirring spoon to stir each mixture and observe.
4. Design a table to record the results. Describe the properties of each of the mixtures. Which solid materials dissolved in water to make a solution? Answer the focus question.

INV. 1 ACTIVITY—MIXING LIQUIDS WITH WATER

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Focus Question: What happens when you mix liquids with water?

Plan and carry out an investigation using some of the materials listed below. You can test other materials if you check with an adult in your home. Record and analyze your results. Then answer focus question 2.

Tools to use

- 4 Clear containers
- 1 Measuring spoon (15 mL or tablespoon)
- 1 Measuring cup
- 4 Stirring spoons

Materials to test

- Cooking oil
- Syrup of some kind
- Liquid detergent
- Salt water

Suggested procedure

1. Measure 60 mL (or 1/4 cup) of room-temperature water into each clear container.
2. Measure 30 mL (2 tablespoons) of one of the liquids, and pour it into one of the containers of water.
3. Stir and observe what happens.
4. Wipe off the measuring spoon.
5. Measure 30 mL (2 tablespoons) of a second liquid into one of the containers of water. Continue this procedure until you have a different liquid in each of the containers of water.
6. Use a stirring spoon to stir each mixture and observe. Wait several minutes and observe again.
7. Design a table to record the results. You might also draw what you observe. Describe the properties of each of the mixtures. Answer the focus question.

INV. 1 ACTIVITY—MAKING HAND SANITIZER**

****Safety note: Only do this when you have an adult to supervise the activity.****

Focus Question: What happens when you mix liquids?

Plan and carry out an investigation using some of the materials listed below. Record and analyze your results.

Tools to use

- 4 Clear squeeze bottles with caps
- 1 Mixing Bowl
- 1 Set of measuring cups
- 1 Stirring spoon
- 1 Funnel

Materials to test

- Aloe vera gel
- Isopropol alcohol

Suggested procedure

1. Measure 60 mL (or 1/4 cup) of aloe vera gel into mixing bowl.
2. Measure 120 mL (or 1/2 cup) of isopropol alcohol, and pour it into the mixing bowl.
3. Stir and observe what happens.
4. Using the funnel pour your mixture into the squeeze bottles and replace the cap.
5. Use your new hand sanitizer when you have been in public, and do not have access to soap and warm water to wash your hands.
6. To use, wet your hands thoroughly with your hand sanitizer and allow to dry without wiping.

INV. 1 ACTIVITY—RESEARCH TABLE SALT

Focus Question: How do humans process and use salt? How does salt form?

Use the *FOSS Science Resources: Mixtures and Solutions* Interactive eBook on FOSSweb and other Internet sources to research the different types and uses of common salt (sodium chloride) and how it forms.

Sources

- Interactive eBook *FOSS Science Resources: Mixtures and Solutions*, 'The Story of Salt' (page 13)
- Internet sources

Instructions

1. Read "The Story of Salt" to find out more about common salt (sodium chloride).
2. Research salt types on the Internet to discover the different types of salt and their uses.
3. Find out where salt comes from locally.
4. Create a poster-presentation for the information you discover. The poster should include facts and pictures that includes answers to the following questions:
 - a. What are the different types of common salt?
 - b. How are those different types of salt used?
 - c. How are those different types of salt processed for use?
 - d. How does salt form?
 - e. Is there a local area where salt is formed, collected, and processed near you?

INV. 1 ACTIVITY—INVESTIGATE EXTRACTS

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Focus Question: What are extracts?

Find out what extracts are and investigate if there are any natural resources in your yard that will create an extract.

Materials

- Interactive eBook FOSS *Science Resources: Mixtures and Solutions*, “Extracts” (pages 16–17)
- 1 Half-filled water bottle, plastic, recycled 1/2 L
- 1 Empty water bottles, plastic, recycled, 1/2 L
- Natural materials from your yard (e.g., rocks, leaves, soil, flowers, fruits, etc.)
- Heavy rock for crushing your material (optional)
- 1 Paper coffee filter
- 1 Funnel
- Shallow dish or lid

Suggested procedure

1. Read “Extracts” in the Interactive eBook FOSS *Science Resources: Mixtures and Solutions* to find out about a special kind of solution called an extract.
2. Take your materials outdoors.
3. Look around your yard for natural items you think might make an extract when mixed with water.
4. Place one kind of material in each half-filled water bottle. If your material is too large, consider crumbling into little pieces (dry leaves) or using a heavy rock to crush it so it will fit easily into the bottle.
5. Shake the bottle vigorously. Allow the bottle to settle for a while.
6. Fit a coffee filter into the funnel and then place the funnel over an empty water bottle. Pour the contents of your bottle into the funnel to filter out the large pieces of material.
7. What do you observe?
8. Is the liquid a solution? How do you know?
9. Is the liquid an extract? How do you know?
10. What could you do to find out? Set up an experiment to separate the solution or extract.