



# 7<sup>th</sup> Grade PS 6.7.5

## Newton's Laws of Motion

<b>Physical Science</b>	<b>Content Standard 6:</b> Motion and Forces: Students shall demonstrate and apply knowledge of motion and forces, using appropriate safety procedures, equipment, and technology				
<b>Student Learning Expectation</b>  <b>Grade 7</b>	<b>Essence of Student Learning Expectation</b>	<b>Less Complex</b>  <b>More Complex</b>			
PS.6.7.5 Explain how Newton's three laws of motion apply to real world situations (e.g., sports, transportation)	Fundamental laws govern the motion of everything in the universe.	Demonstrate that objects in motion stay in motion and objects at rest stay at rest unless acted upon by an outside force.  Example: Play a game using a ball. The ball remains still until it is pushed, hit, or thrown.  Example: --Croquet --Pool --Baseball --Bowling	Demonstrate that when a force is placed on an object, the object will accelerate in the direction of the force.  Example: Play a game using a ball. When the ball is hit, pushed or thrown, the ball will accelerate in the direction it is pushed, hit or thrown.  Example: --Push a bowling ball down a ramp. --Hit a baseball. --Throw a ball. --Miniature golf.	Demonstrate that when a force acts on an object, it is balanced by an equal and opposite force.  Example: --Put a fishing line several feet long through a straw. --Inflate a balloon, twist, and use a clothespin to hold in air. --Tape the balloon to the straw. --Pull the string taut with the straw at one end of the string. --Release the air from the balloon. --The balloon will move down the string.	Give examples of Newton's of motion using picture symbols or actual objects and record observations on a data sheet and answer questions about the results

## Investigating Laws of Motion



Directions: Attempt to catch a dollar bill as it is in motion. Record the number of times you are able to catch the bill within 5 trials.

Trial	Trial 1		Trial 2		Trial 3		Trial 4		Trial 5	
catch	Yes	No								
										

1. How many times did you catch the dollar?

\_\_\_\_\_

# Newton' First Law of Motion:

If an object is not moving, it will not start moving by itself. If an object is moving, it will not stop or change direction unless something pushes it.

2. Why didn't you catch it every time?

a. A moving object continues to move



b. A moving object tends to rest



3. What does this experiment tell you about an object in motion?

a. A moving object will stop when acted upon by a force.



b. A moving object will stop when tired.



# Newton's Second Law of Motion

Objects will move farther and faster when they are pushed harder.

## Exploring Newton's Second Law of Motion



Directions: Push the car with your right hand and measure the distance. Push the car with your left hand and measure the distance. Record the data and interpret the results.

1. How far did the car travel when pushed by your left hand?



My  moved the car \_\_\_\_\_ inches.

2. How far did the car travel when pushed by your right hand?



My  moved the car \_\_\_\_\_ inches.

3. Which hand moved the car farther?



4. Why did the car move farther with your left/right hand?

a. My left/right hand provided greater



b. My left/right hand provided greater



5. What does that tell you about your left/right hand?

a. My left/right hand is



b. My left/right hand is



# Newton's 3<sup>rd</sup> Law of Motion

When an object is pushed in one direction, there is always a resistance of the same size in the opposite direction.

## Balloon Rocket

Name: \_\_\_\_\_

First, make a balloon rocket.

1.	Cut off the bendable part of a straw. Run a string through the straw and tie the two ends to two places in the room.	string 	straw 
2.	Blow up a balloon and secure the end with a clothespin.	balloon 	clothespin 
3.	Tape the straw onto the side of the balloon.	tape 	
4.	Take the clothespin off and watch your balloon rocket go.	clothespin off 	

Now answer questions on the next page.

## Balloon Rocket p. 2

Name: \_\_\_\_\_

Mark your answers.

1.	When you took the clothespin off, did the balloon stop or go?		
2.	Did it go away from you or towards you?	away 	towards 
3.	Which end of the balloon did the air come out of? (The lip is where you blow it up.)	top 	lip 
4.	The air came out one end. Did the balloon go in the same direction or in the opposite direction?	same 	opposite 

Real rockets work for the same reason: For every action there is an opposite and equal reaction. This is Newton's Third Law of Motion.

## Newton's Laws of Motion



Directions: Kick the soccer ball standing and running. Record your findings.

1. How far did you kick the ball while standing still?

\_\_\_\_\_ Feet

2. How far did you kick the ball while running?

\_\_\_\_\_ Feet

3. Which was farther?

A. standing  stand

B. running  run

4. Why was it farther?

a. increased speed and velocity  increase

b. decrease speed and velocity  decrease

Include pictures of the child conducting the experiment. If the child is unable to physically perform the tasks of running and kicking, then have a classmate do so while the student observes and collects the data.

# 7<sup>th</sup> Grade ESS 8.7.5

## Identify Elements of Weather

<b>Earth and Space Science</b>	<b>Content Standard 8:</b> Earth Systems: Students shall demonstrate and apply knowledge of Earth's structure and properties using appropriate safety procedures, equipment, and technology				
<b>Student Learning Expectation</b>	<b>Essence of Student Learning Expectation</b>	<b>Less Complex</b> → <b>More Complex</b>			
<b>Grade 7</b>					
ESS.8.7.5 Identify elements of weather: <ul style="list-style-type: none"> <li>• temperature</li> <li>• air pressure</li> <li>• wind speed</li> <li>• wind direction</li> <li>• humidity</li> </ul>	Many factors determine the weather.	Record daily weather conditions from a source and post conditions in the classroom, office, or daily announcements.  Example: --newspaper --internet --telephone --radio station	Choose clothing and activities appropriate for the day's weather.  Example: --match rain with raincoat or umbrella	Look at pictures of different environments and identify the elements of weather that determine the climate of each one.  Example: --rainforest --tundra --desert	Record daily weather conditions and chart the weather over a period of time (e.g. two weeks).

Resources:

- [www.weather.com](http://www.weather.com) (Weather Channel)
- [www.nws.noaa.gov](http://www.nws.noaa.gov) (National Weather Service)
- [www.wunderground.com](http://www.wunderground.com) (Weather Underground)
- [www.acuweather.com](http://www.acuweather.com) (Accu Weather)
- [www.weather.weather.weatherbug.com](http://www.weather.weather.weatherbug.com) (Weather Channel)
- [www.igoogle.com](http://www.igoogle.com) (Set up weather gadget on iGoogle)





# Today's Weather



Today's weather will be



The temperature will be



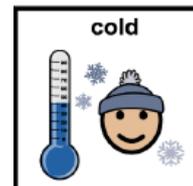
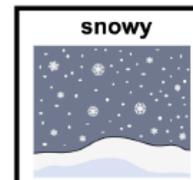
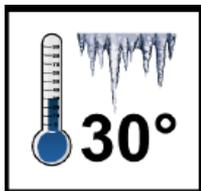
It will feel



outside.



Cut and paste picture cards that are provided



You (will) (will not) need a coat today.



You (will) (will not) need an umbrella today.





<b>cool</b> 	<b>warm</b> 	<b>hot</b> 	<b>cold</b> 
<b>cloudy</b> 	<b>rainy</b> 	<b>stormy</b> 	<b>clear</b> 

<b>snowy</b> 	<b>foggy</b> 	<b>partly sunny</b> 	<b>winter coat</b> 
<b>light jacket</b> 	<b>sweatshirt</b> 	<b>T-shirt</b> 	<b>boots</b> 
<b>shorts</b> 	<b>jeans</b> 	<b>bathing suit</b> 	<b>stocking cap</b> 
<b>sweater</b> 	<b>sandals</b> 	<b>baseball cap</b> 	<b>gloves</b> 
<b>sunglasses</b> 	<b>scarf</b> 		

# 7<sup>th</sup> Grade PS 7.7.1

## Identify Natural Resources

<b>Physical Science</b>	<b>Content Standard 7:</b> Energy and Transfer of Energy: Students shall demonstrate and apply knowledge of energy and transfer of energy using appropriate safety procedures, equipment, and technology.				
<b>Student Learning Expectation</b>  <b>Grade 7</b>	<b>Essence of Student Learning Expectation</b>	<b>Less Complex</b>  <b>More Complex</b>			
PS.7.7.1 Identify natural resources used to supply energy needs.	Many of our energy needs are met using resources from nature.	List in words or pictures resources in nature used to supply energy.  Example: --Sun --Water --Wood --Fossil fuels	Using pictures of a variety of environments, mark or circle the natural resources that are energy sources.	Collect pictures of natural resources and use them to make a collage.	Collect pictures of natural resources and write or tell how they are used as sources of energy.

Name: \_\_\_\_\_

## Natural Resources Matching

Directions: Draw a line to the matching natural resource used to supply energy needs.

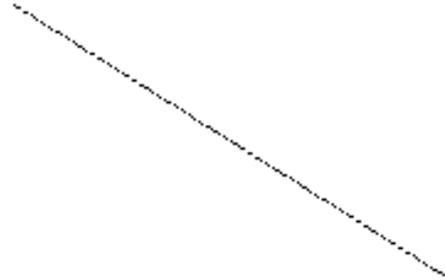
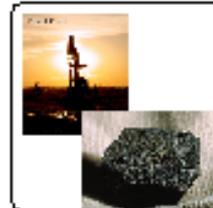
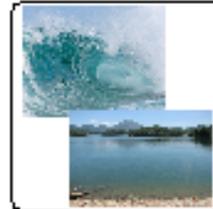
water

wood

heat from  
inside the  
earth

biomass

fossil  
fuels



# Natural Resources Used for Energy

Tell how the natural resources are used as sources of energy by matching the picture of the use to the picture of the source.

water



trees



woodpile



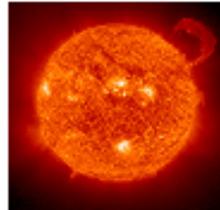
natural hot springs



wind



sun



coal mine



ocean wave



hydroelectric power station



biomass wood chip plant



fireplace



geothermal plant



wind turbine energy



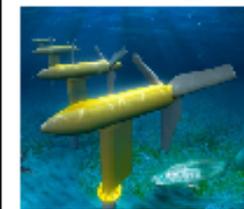
solar energy



coal plant



ocean energy



# Experiment with Solar Energy



## science page



**NEED**  

8 graham cracker squares



2 plain chocolate candy bars



16 miniature marshmallows



9" x 13" glass baking dish



plastic wrap



TEACHER NOTE: This activity works best on a day when outdoor temperatures are in the 80s or above. Time will vary according to how hot the temperature is. The above amounts will make four square S'mores sandwiches.

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**What We Know:**



- Sun energy can be used to make electricity. 
- It can be used for heat and light. 

**Step 1: Ask a Question**

• Can we also use Sun energy to heat food? 

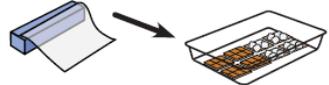
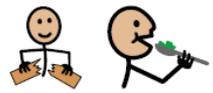
**Step 2: Make a Guess / Hypothesis**

I think...	Yes, the Sun can heat food.	No, the Sun cannot heat food.	Other guess:
	 	 	

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## Step 3: Do an Experiment

1. Put graham crackers, side by side, in baking dish. 
2. Put half a chocolate bar on each of four crackers. 
3. Put four marshmallows, on each of the other four crackers. 
4. Use plastic wrap to cover dish, sealing edges. 
5. Put dish directly in Sun. 
6. Check regularly until chocolate and marshmallows soften. 
7. Put a cracker with chocolate together with each cracker with marshmallows. 
8. Break into individual servings and enjoy! 

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News2You

Pg. 1

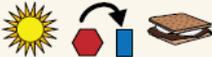
 **Step 4: Organize Data**

**1. What did the chocolate do?** 

melt 	freeze 	grow larger 
---	---	--

**2. How did the marshmallows change?** 

drier 	harder 	softer 
--	---	---

**3. How did the Sun change the food?** 

colder 	warmer 	more colorful 
--	--	---

April 30, 2012

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 **Step 5: Find the Conclusion**

**1. Why did you need the plastic wrap?** 

kept heat out 	held heat in 
--	---

**2. Did Sun energy help heat the food?** 

yes 	no 
--	---

**3. Was your guess correct?** 

yes 	no 
--	---

April 30, 2012

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# 7<sup>th</sup> Grade PS 7.7.2

## Alternatives to Fossil Fuels

<b>Physical Science</b>	<b>Content Standard 7: Energy and Transfer of Energy:</b> Students shall demonstrate and apply knowledge of energy and transfer of energy using appropriate safety procedures, equipment, and technology.				
<b>Student Learning Expectation</b>  <b>Grade 7</b>	<b>Essence of Student Learning Expectation</b>	<b>Less Complex</b>	→	<b>More Complex</b>	
PS.7.7.2 Describe alternatives to the use of fossil fuels: <ul style="list-style-type: none"> <li>• solar energy</li> <li>• geothermal energy</li> <li>• wind</li> <li>• hydroelectric power</li> <li>• nuclear energy</li> <li>• biomass</li> </ul>	Other forms of energy exist that can be used in place of fossil fuels.	Find items or pictures of energy sources that are alternatives to fossil fuels.  Example: --Water wheel --Sun	Draw or trace pictures of natural resources that are alternatives to fossil fuels.	Use energy sources that are alternatives to fossil fuels.  Example: --Make sun tea --Roast marshmallows over a fire. --Cook hot dogs over a charcoal fire. --Make a solar oven.	Use technology to gather information about alternatives to the use of fossil fuels.  Example: Make a booklet

# Alternatives to Fossil Fuels



wind energy

biomass

nuclear energy

ocean energy

If needed provide the word beneath the photo for the student to match.



water wheel



solar energy



hydroelectric dam



goothermal energy

water wheel

### Match the Energy Sources



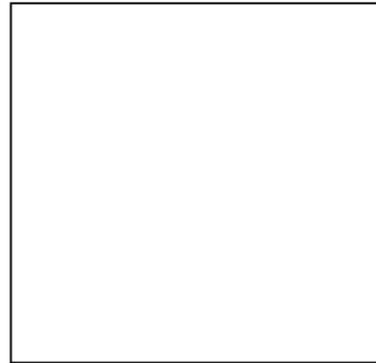
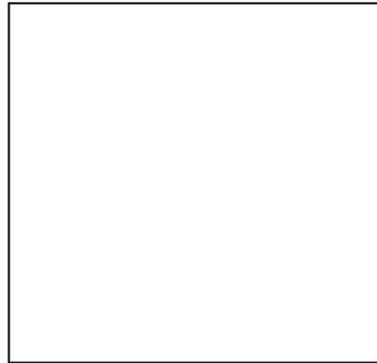
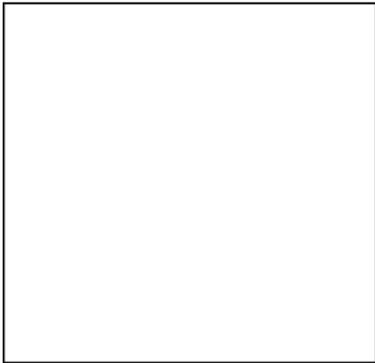
Wind Energy



Biomass



Nuclear Energy



For lower level students simply have them match photos of the energy sources. Make certain to include the name of each alternative fossil fuel with the photo.



Wind Energy



Biomass

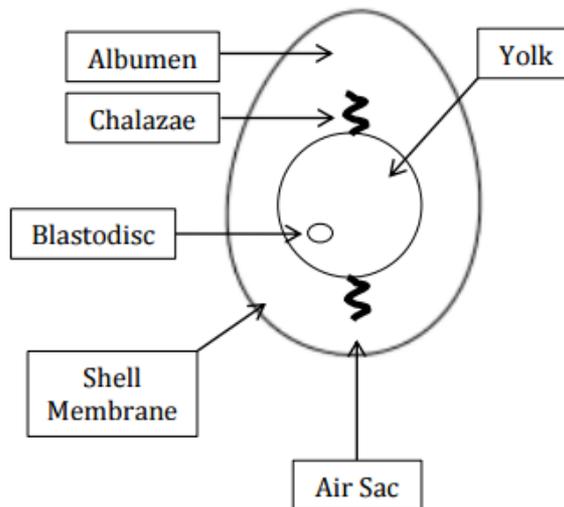


Nuclear Energy

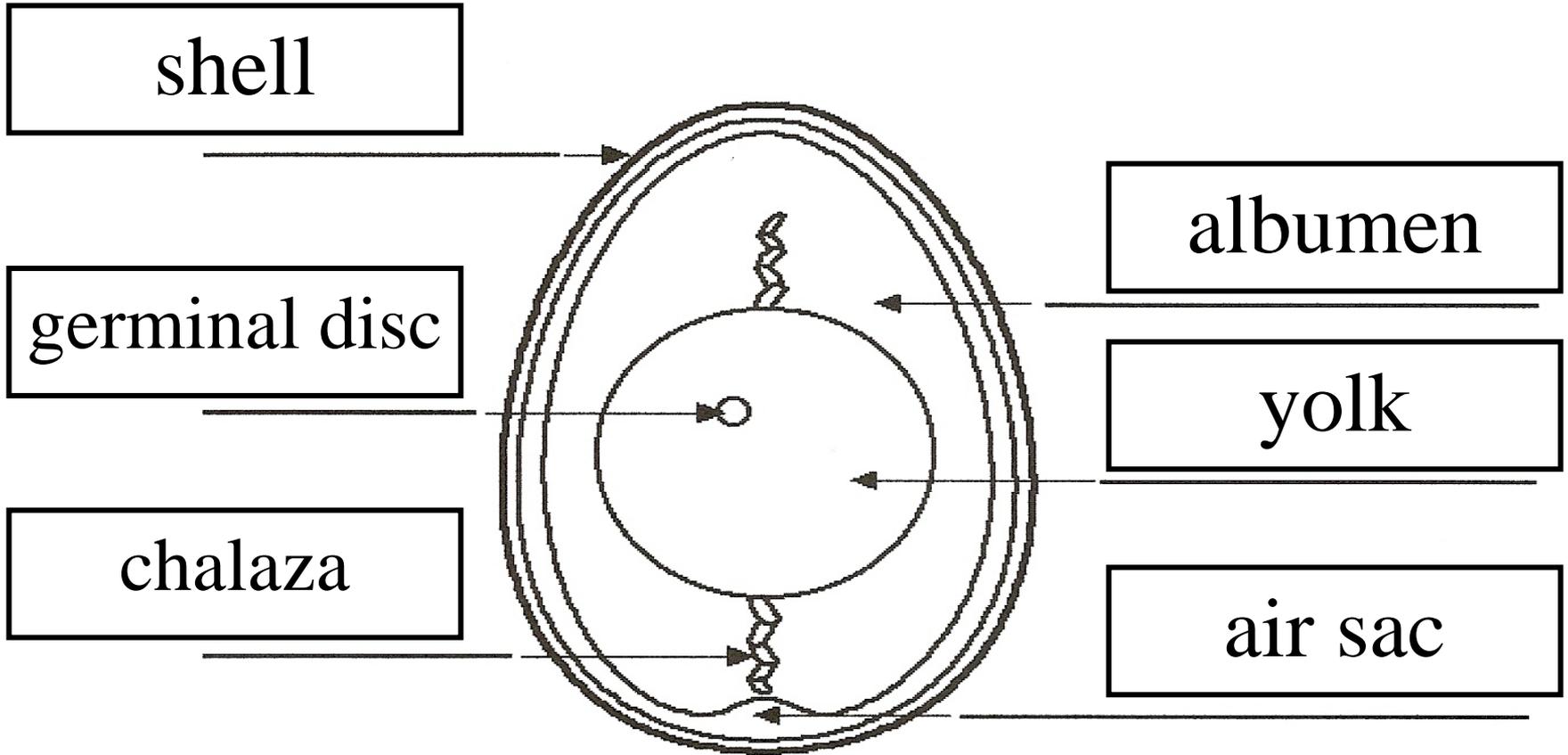
# 7<sup>th</sup> Grade LS 3.7.5

## Dissect Poultry Egg

<b>Life Science</b>	<b>Content Standard 3:</b> Life Cycles, Reproduction, and Heredity: Students shall demonstrate and apply knowledge of life cycles, reproduction, and heredity using appropriate safety procedures, equipment, and technology.				
<b>Student Learning Expectation</b>  <b>Grade 7</b>	<b>Essence of Student Learning Expectation</b>	<b>Less Complex</b> → <b>More Complex</b>			
LS.3.7.5 Dissect a poultry egg to analyze its structure (e.g., paper, plastic, or clay models, virtual dissection, or specimen dissection.)	Look closely at a part of the reproductive system as represented by an egg.	Break open a raw or hard-boiled egg. Look at the egg and name the parts to develop vocabulary.	Discuss and trace vocabulary naming the parts of the egg.	Make a model of an egg to show the parts of the egg.  Example: --Model made of paper in booklet form. --Model made of modeling clay	Investigate egg hatching and match the parts of the egg to the end result of the hatching process.  Example: --Video --Field trip to see eggs hatch --Incubate eggs*



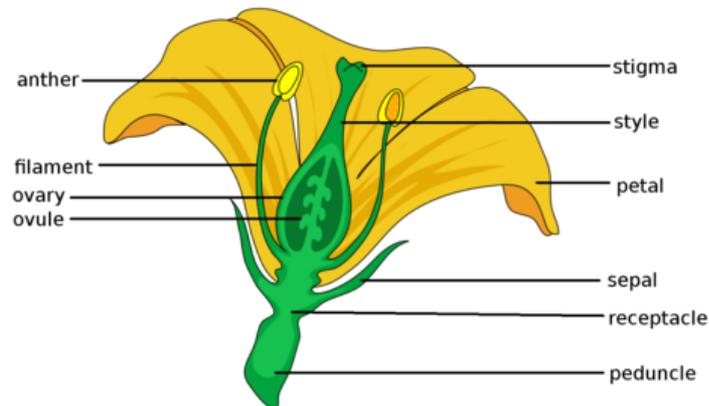
# Dissect the Poultry Egg



# 7<sup>th</sup> Grade LS 3.7.6

## Dissect Flower

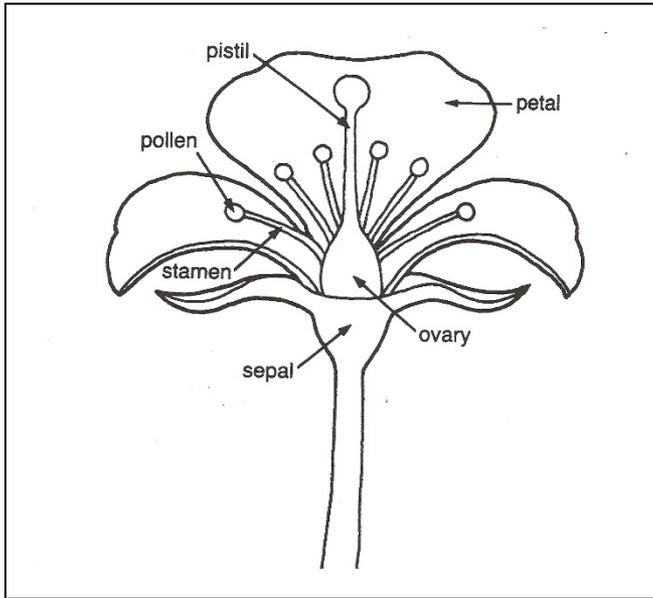
<b>Life Science</b>	<b>Content Standard 3:</b> Life Cycles, Reproduction, and Heredity: Students shall demonstrate and apply knowledge of life cycles, reproduction, and heredity using appropriate safety procedures, equipment, and technology.				
<b>Student Learning Expectation</b>  <b>Grade 7</b>	<b>Essence of Student Learning Expectation</b>	<b>Less Complex</b> → <b>More Complex</b>			
LS.3.7.6 Dissect a flower to analyze the reproductive system of angiosperms. (e.g., paper, plastic, or clay models; virtual dissection; or specimen dissection)	Look closely at the reproductive system as represented by a flower.	Look at a flower and name the parts to develop vocabulary.	Discuss and trace vocabulary naming the parts of a flower.	Make a model of a flower to show the parts of a flower.	Look at a variety of flowers to identify the parts. Respond to questions about the activity.  Example: --Invite a florist. --Take a field trip. --Use pressed flowers or picture symbols.



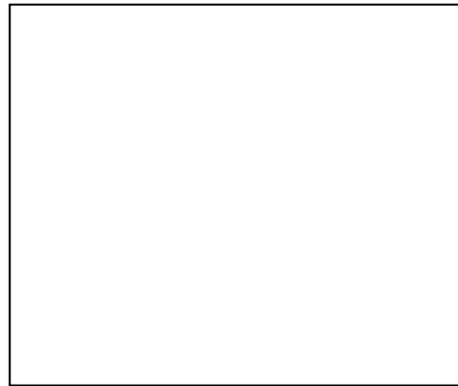
# Flower Dissection

Directions: Dissect the plastic flower. Cut the pieces of the flower and tape them in the correct boxes.

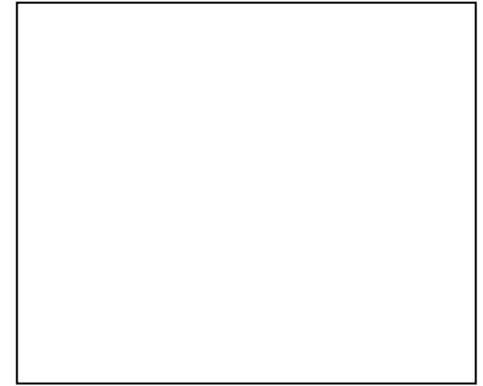
Picture of My Flower



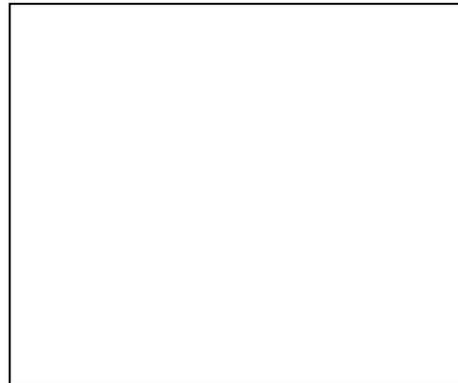
Pistil



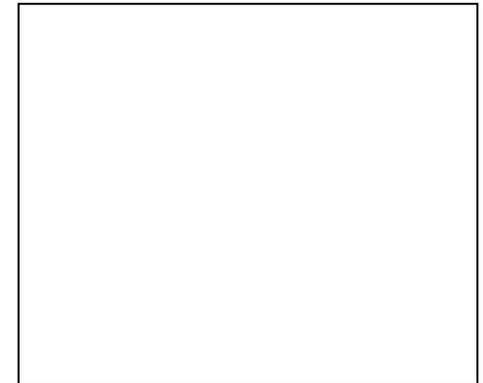
Anther



Stamen

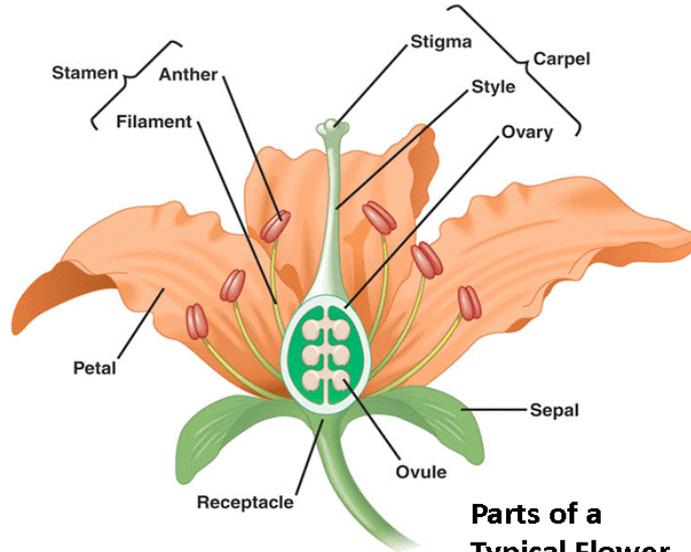


Stigma



**Dissecting a Flower**

1. Be very organised and make sure you have all the space, good light and equipment you need before you begin.
2. Carefully remove the sepals and then the petals.
3. Delicately remove the anthers and filaments to reveal the inside of the flower.
4. If possible slice through the receptacle to reveal the ovule.
5. Remember that every flower is different, and no flower looks quite like the diagram!



**Parts of a Typical Flower**

- Use the grid below to lay out the parts of your dissected flower.
- Cover them carefully with sellotape.

<b>petal</b>	<b>sepal</b>	<b>stamen</b>	<b>carpel</b>
<b>pollen</b>			

# Flower Dissection

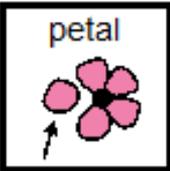
Name: \_\_\_\_\_

Use a large simple flower. You will need a hand lens. Spread paper or paper towels on your desk and place the flower on it.

1. What is the common name of your flower?



2. Look at the petals.



Pull them off and count them.

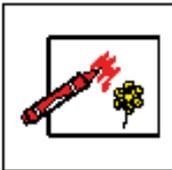


3. How many petals are there?  
Mark your answer.



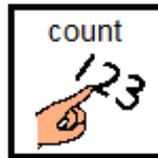
1	2	3	4	5
6	7	8	9	10

4. What color are the petals?



red	yellow	orange	purple
			

5. Look at the sepals. Pull them off and count them.



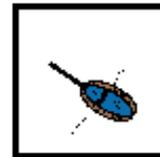
How many sepals are there?

1	2	3	4	5	6	7
---	---	---	---	---	---	---

6. What color are the sepals?

red 	yellow 	green 	orange 	purple 
--	---	--	---	---

7. Remove a stamen. Look at the end with the hand lens.



What do you see?

pollen	eggs	petals
--------	------	--------

8. Find the ovary. Split the ovary open with your fingernail.



Are there any eggs inside?

yes 	no 
--	--

# 7<sup>th</sup> Grade ESS.8.7.16

Avoid smiley  
face suns

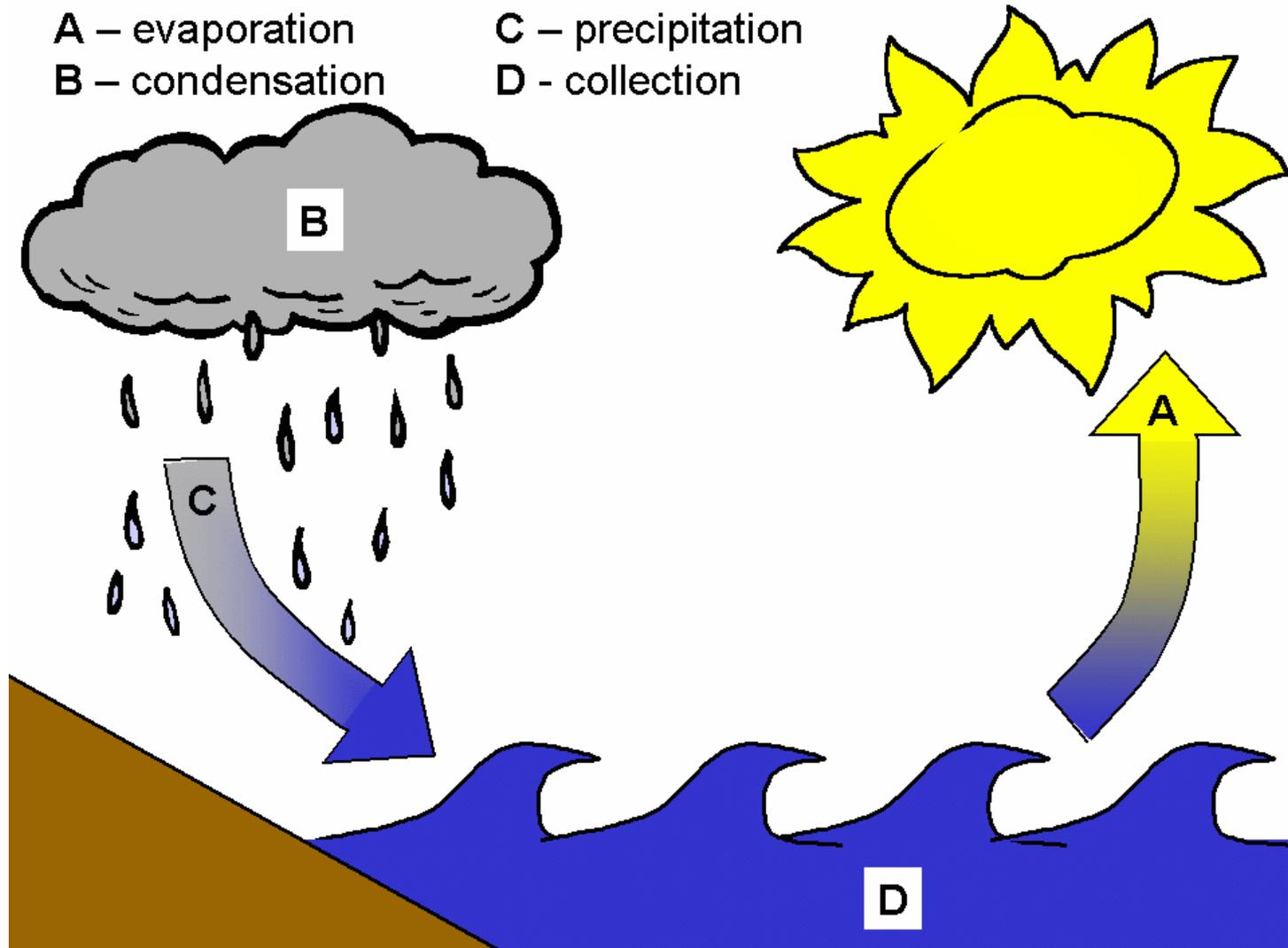
## The Water Cycle

A – evaporation

C – precipitation

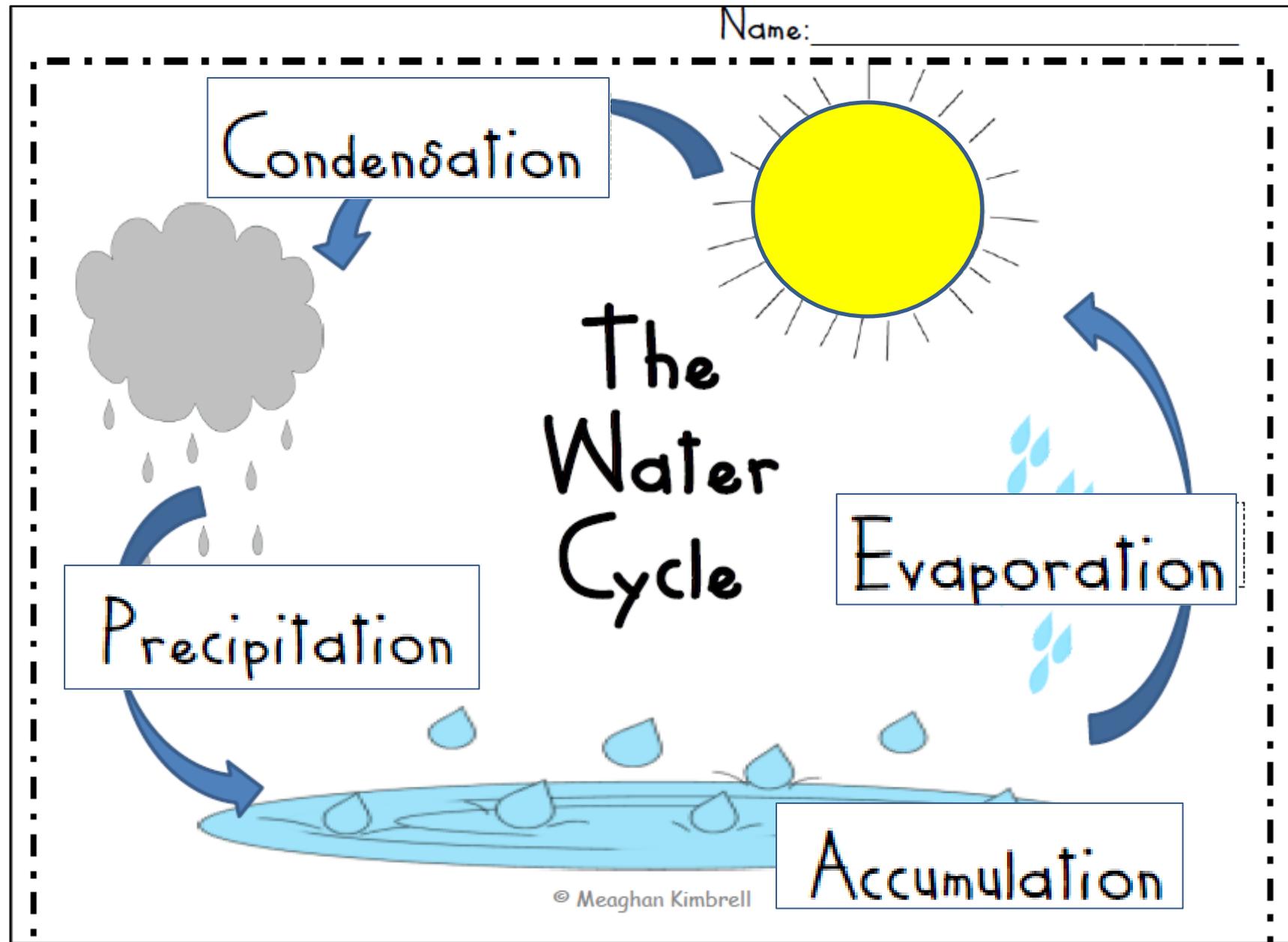
B – condensation

D - collection



# The Water Cycle

Name: \_\_\_\_\_



# Water Cycle in a Bag

ESS 8.7.16

## Materials



what



you



need



Sharpie Marker



Ziploc Bag



Bottle of Water



Blue Food coloring



Window



Sunlight



Tape



Step 1. Get marker and baggie.



Step 2. Draw land, clouds, and sun on the bag.



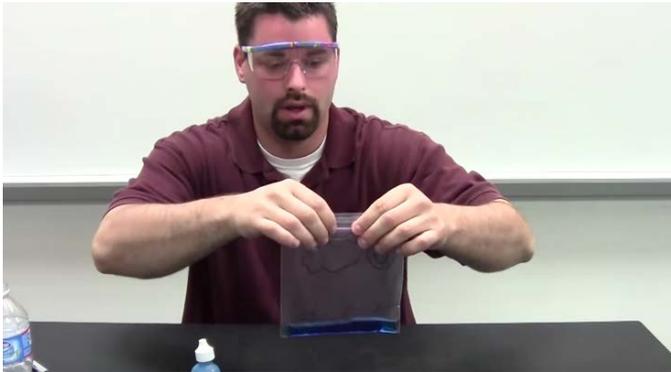
Step 3. Open the bag.



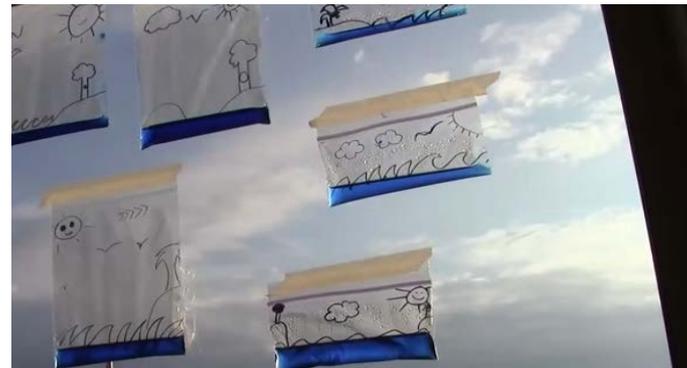
Step 4. Pour a small amount of water into the bag.



Step 5. Add 4 drops of blue food coloring to the water in the bag.



Step 6. Close the bag tightly.

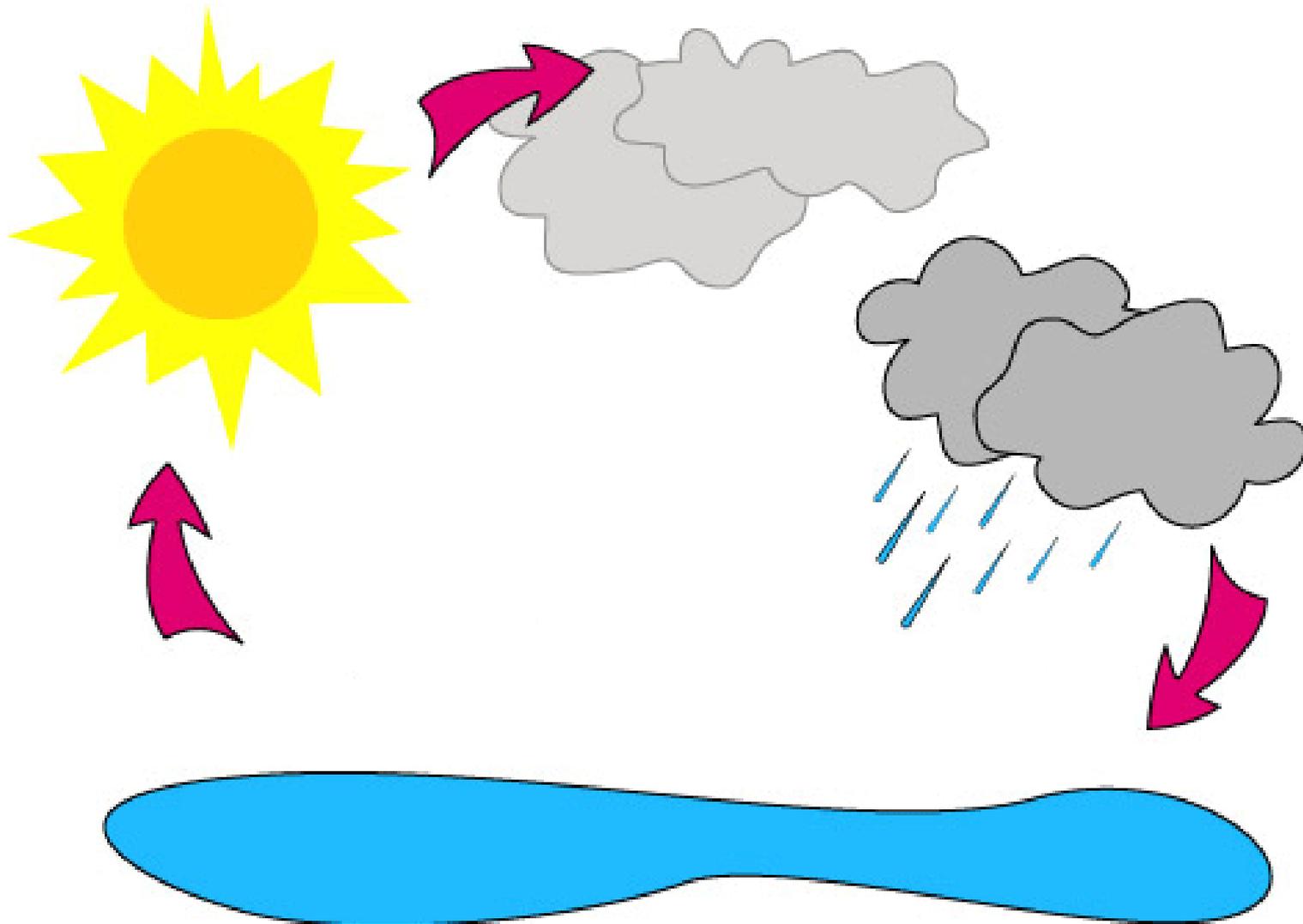


Step 7. Use tape to hang the bag in a window.



Step 8. Once water droplets have developed on the side of the bag, tap the droplets to make it rain.

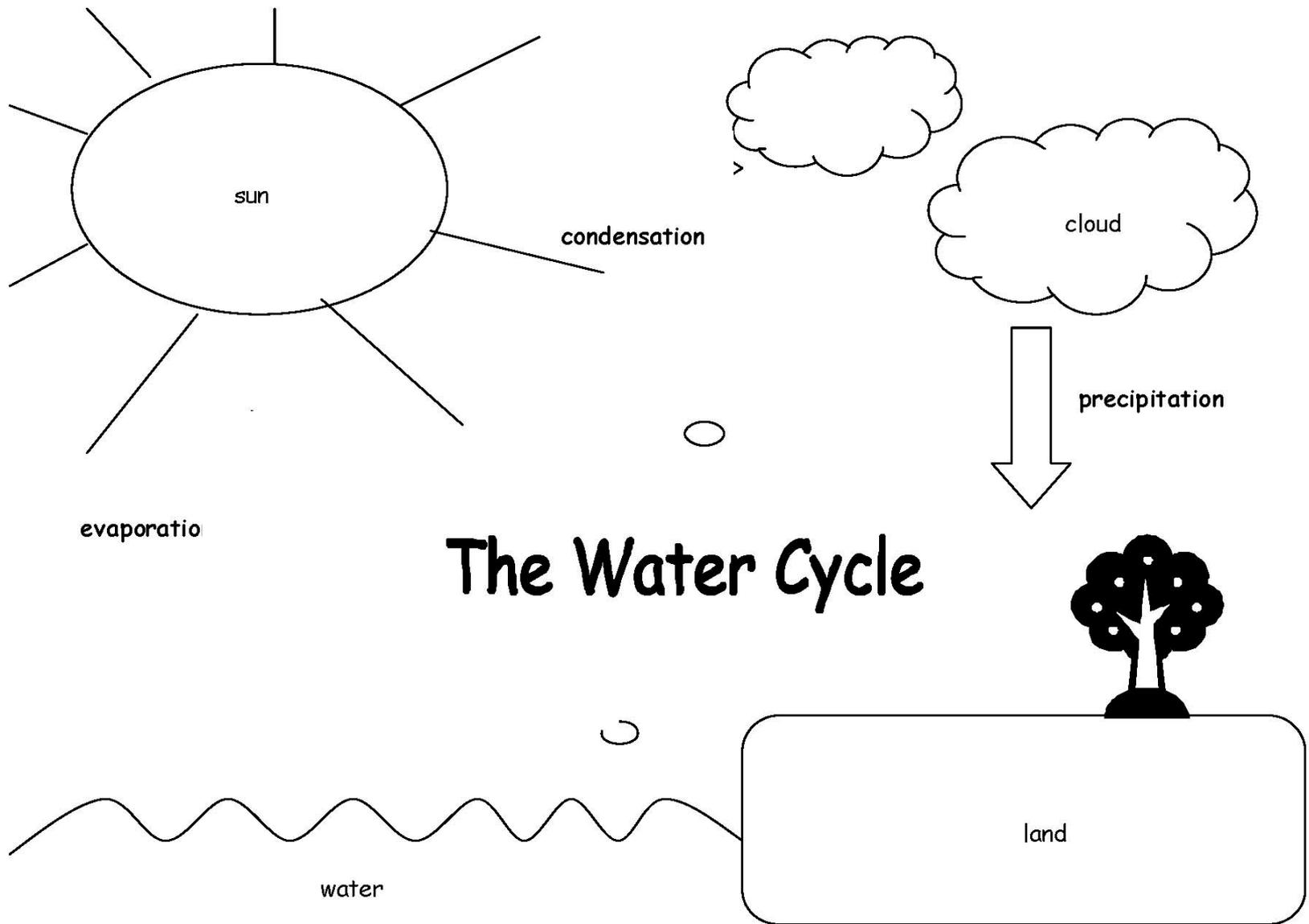
# Label the Water Cycle Using the Labels Provided



Evaporation

Condensation

Precipitation



# The Water Cycle

# Describe ways human beings protect themselves from adverse weather conditions

Name: \_\_\_\_\_

## Blizzard Safety

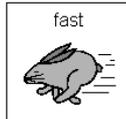
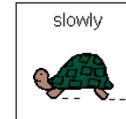
1. During a blizzard you should wear \_\_\_\_\_.

<p>coat &amp; gloves</p> 	<p>bathing suit</p> 
--	---

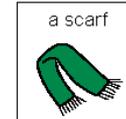
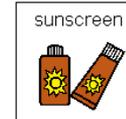
2. What is the best way to heat your home if the electricity goes out?

<p>candles</p> 	<p>fireplace</p> 
--	--

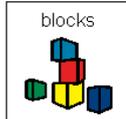
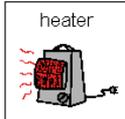
3. If your parents are driving in a car, they should drive very \_\_\_\_\_ on the ice and snow.

<p>fast</p> 	<p>slowly</p> 
---	---

4. Cover your mouth with \_\_\_\_\_ to protect your lungs from extremely cold air.

<p>a scarf</p> 	<p>sunscreen</p> 
--	--

5. Look at each of the examples below. Decide which picture in each set would be the best choice of items to have on hand in case of a blizzard.

<p>first aid kit</p> 	OR	<p>hair spray</p> 
<p>food &amp; water</p> 	OR	<p>kleenex</p> 
<p>blocks</p> 	OR	<p>heater</p> 

DATE: \_\_\_\_\_



# Tornado Safety



NAME: \_\_\_\_\_

1. Tornado happen in what kind of weather ?



sunny



stormy

2. Which device helps you know if a tornado is coming ?



weather radio



cell phone

3. Where is the best place to go in a tornado ?



storm shelter



dinning room

4. Which would be most useful if power is lost in a tornado ?



flashlight



tv set

5. At school, where is the safest place to go during a tornado ?



office

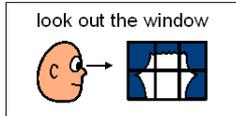


hallway

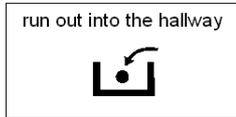
# Tornado Safety

Name: \_\_\_\_\_

If you are at home when a tornado strikes, where should you go?  
Mark two correct answers.



If you are in \_\_\_\_\_'s class when a tornado strikes, what do you do?  
Mark two correct answers.

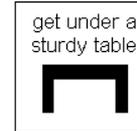


ESS.8.7.10

# Natural Disaster Safety

Name: \_\_\_\_\_

What should you do if you are at home when an earthquake strikes?  
(pick two)

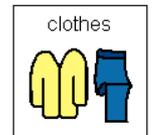
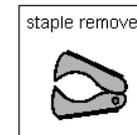
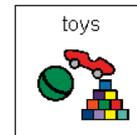
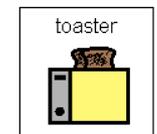
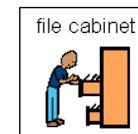
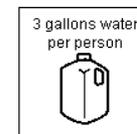


You can eliminate some hazards by:

(pick two)



It is a good idea to prepare a disaster supply kit for your home.  
Mark four things you should include in your kit.



# Sort Objects People Use to Protect Themselves from Adverse Weather Conditions

ESS.8.7.10



1. The student is directed to present information about what she has learned about weather and ways people protect themselves from adverse weather conditions. 2. She is provided with several types of clothing and items and directed to place the items in the appropriate category. The floor is divided into four sections each labeled with a season. 3. She must use weather content vocabulary and discuss why she is placing the items in the specific section. 4. The student completes a related work sample.

# 7<sup>th</sup> Grade PS 5.7.5

## Forming and Separating Mixtures

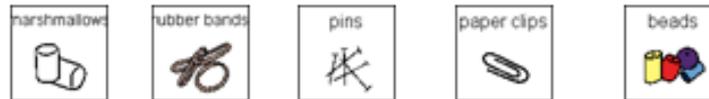
<b>Physical Science</b>	<b>Content Standard 5:</b> Matter: Properties and Changes: Students shall demonstrate and apply knowledge of matter, including properties and changes, using appropriate safety procedures, equipment, and technology				
<b>Student Learning Expectation</b>  <b>Grade 7</b>	<b>Essence of Student Learning Expectation</b>	<b>Less Complex</b> → <b>More Complex</b>			
PS.5.7.5 Demonstrate techniques for forming and separating mixtures: <ul style="list-style-type: none"> <li>• mixing</li> <li>• magnetic attraction</li> <li>• evaporation</li> <li>• filtration</li> <li>• chromatography</li> <li>• settling</li> </ul>	A mixture can be separated and form a liquid into its parts in many ways.	Mix together a variety of items to make a mixture.  Example: --Trail mix --Cereal mix --Rice and paper clips --Nuts and bolts --Sand and rocks --Fruit Salad or Tossed Salad --Epsom salts and water painted on black paper	Use colored markers to mark on wet coffee filters. Watch the colors wick through the filters.	Separate metal objects from non-metal objects using a magnet.  Example: --Paper clips and rice --Iron filings and pencil shavings. --Iron fortified cereal)	Predict what will happen when you attempt to separate a mixture and check the prediction.  Example: Will the magnet separate the paper clips from the rice?

# Separating Mixtures

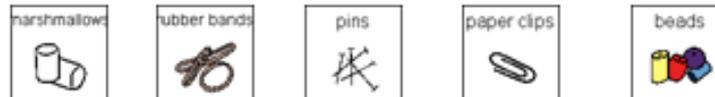
Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Separating Mixtures with Magnets

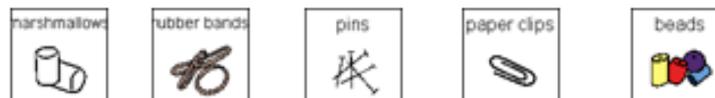
1. Circle the items you see in Mixture #1.



2. Predict and circle which item(s) you think will separate from the mixture by attaching to the magnet wand?



3. Which item(s) separated from the mixture? Circle and write your findings below.



# Forming and Separating Mixtures

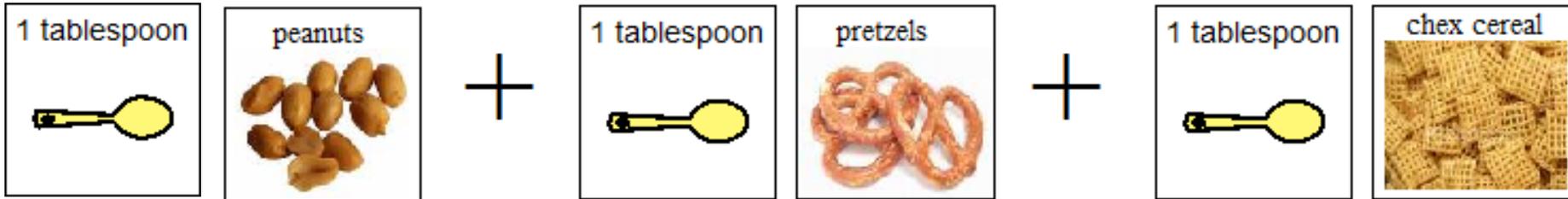
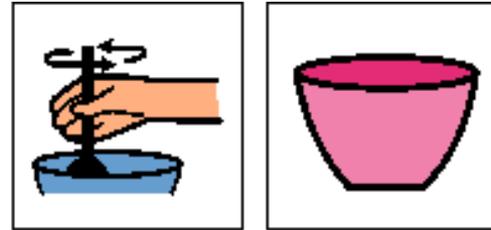


Trail mix

# Forming and Separating Mixtures

Mix together a variety of items to make a mixture. Then, separate the mixture into the various elements.

Mix together in a large bowl the following elements.



# Separating Mixtures with Trail Mix

1. Separate the M&Ms from the mixture.



I have \_\_\_\_\_ M&Ms.

2. Separate the peanuts from the mixture.



I have \_\_\_\_\_ peanuts.

3. Separate the Chex Mix from the mixture.



I have \_\_\_\_\_ Chex Mix.

4. Separate the pretzels from the mixture.



I have \_\_\_\_\_ pretzels.

5. Separate the raisins from the mixture.



I have \_\_\_\_\_ raisins.

6. The mixture contained mostly which element?



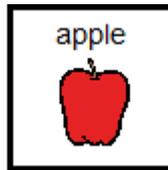
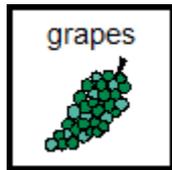
7. The mixture contained the least amount of what element?





# Fruit Salad

1. Mark the items you want to combine to make a fruit salad mixture.



2. Place all items in the bowl and stir to make a mixture.

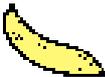


3. How many  grapes did you add to the mixture?

1	2	3	4	5	6	7
---	---	---	---	---	---	---

4. How many apple slices  did you add to your mixture?

1	2	3	4	5	6	7
---	---	---	---	---	---	---

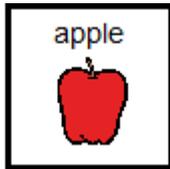
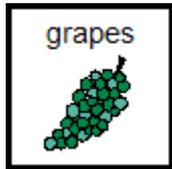
5. How many banana slices  did you add to your mixture?

1	2	3	4	5	6	7
---	---	---	---	---	---	---

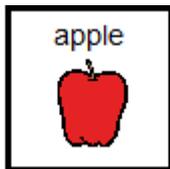
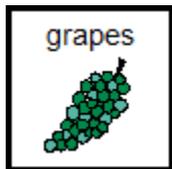
6. Which type of nut did you add to your mixture?



7. Your mixture contained the least amount of what fruit/nut?



8. Your mixture contained the most of which fruit/nut ?



# 7<sup>th</sup> Grade PS 5.7.8

## Investigate the effect of variables on *solubility rates*

<b>Physical Science</b>	<b>Content Standard 5:</b> Matter: Properties and Changes: Students shall demonstrate and apply knowledge of matter, including properties and changes, using appropriate safety procedures, equipment, and technology				
<b>Student Learning Expectation</b>  <b>Grade 7</b>	<b>Essence of Student Learning Expectation</b>	<b>Less Complex</b>  <b>More Complex</b>			
PS.5.7.8 Investigate the effect of variables on solubility rates.	Stirring, heating, and/or crushing will speed up dissolving.	Add a substance to both a container of hot water and a container of cold water. Compare the rate of dissolving and document using a lab sheet may be used to document results  Example: --Gelatin --Sugar cubes --Bouillon cubes	Add the same amount of a substance to two containers of water. Stir or shake one. Compare the rate of dissolving and document using a lab sheet may be used to document results  Example: --Drop of food coloring --Sugar --Flavored drink mix	Using a solid substance and the same substance crushed into bits, add each to different containers of water. Compare the rate of dissolving and document using a lab sheet may be used to document results  Example: --Sugar cube --Bouillon cube --Aspirin --Hard candy	Following an investigation of dissolving, record observations on data sheet and answer questions about results.

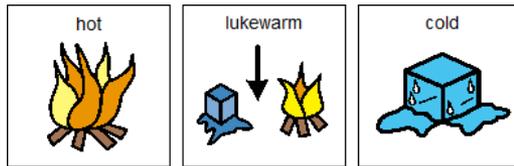
# Gummy Bear Solubility

PS 5.7.8

*How does the temperature of water affect the solubility of a gummy bear?*

Place 1 gummy bear in hot water, 1 in lukewarm water and 1 in cold water. Record how long it takes each bear to dissolve. Answer the questions provided.

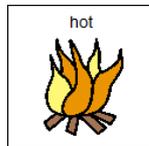
Prediction: I think the gummy bear in the \_\_\_\_\_ water will dissolve (disappear) first.



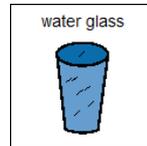
1. Place gummy bear A



in the



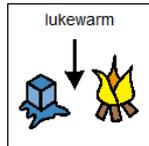
water



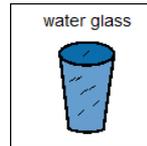
2. Place gummy bear B



in the



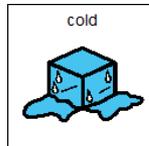
water



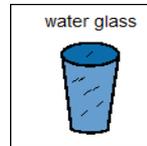
3. Place gummy bear C



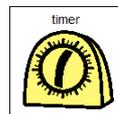
in the



water



Set the timer and record your findings.



1. How long did it take gummy bear A to dissolve?



\_\_\_\_\_ minutes \_\_\_\_\_ seconds

2. How long did it take gummy bear B to dissolve?



\_\_\_\_\_ minutes \_\_\_\_\_ seconds

3. How long did it take gummy bear C to dissolve?

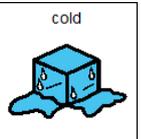
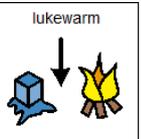
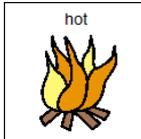


\_\_\_\_\_ minutes \_\_\_\_\_ seconds

4. Which Gummy bear dissolved first?



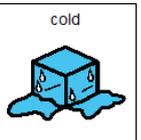
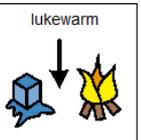
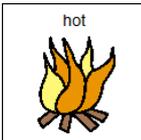
5. What glass of water was it placed in?



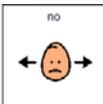
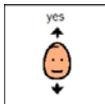
6. Which gummy bear dissolved last?



7. What glass of water was it placed in?

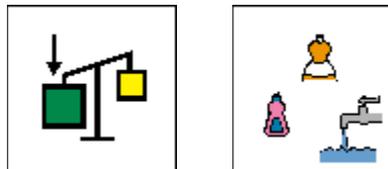


8. Was your prediction correct?



## Settling:

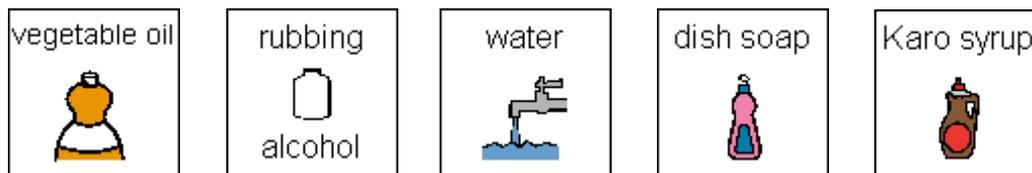
*The density of different liquids*



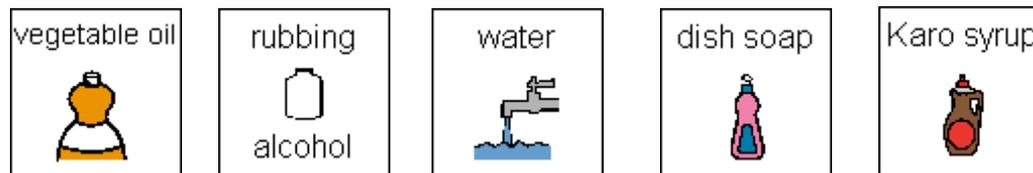
Purpose: To compare the densities of 5 different liquids.

### My Prediction:

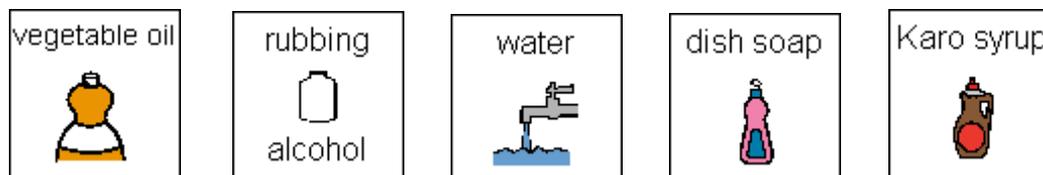
1. Predict, circle the mixture you think will be the heaviest and will sink to the bottom?



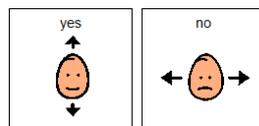
2. Of these 5 liquids, which one had the highest density (weighed the most)?



3. Of these 5 liquids, which one had the lowest density (weighed the least)?



4. Was your prediction correct?

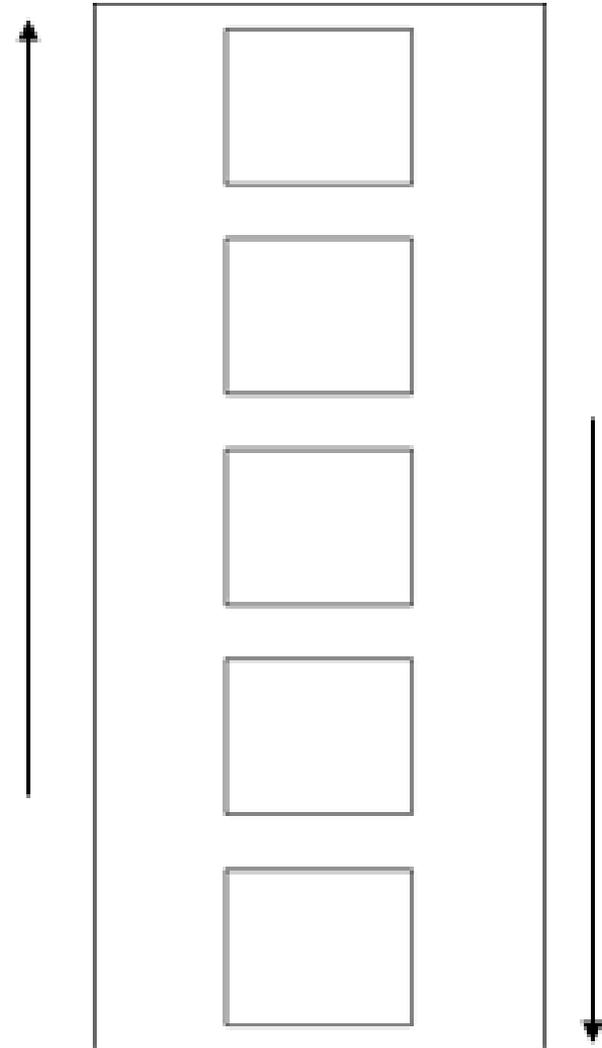


Cut out and paste the liquids below in the order you see them in the cylinder.

- **Step 1:** Measure 8 ounces of light Karo syrup and pour it in a glass.
- **Step 2:** Measure 8 ounces of water and pour it in a glass.
- **Step 3:** Measure 8 ounces of vegetable oil and pour it in a glass.
- **Step 4:** Measure 8 ounces of Dawn dish soap and pour it in a glass.
- **Step 5:** Measure 8 ounces of rubbing alcohol and pour it in a glass.
- **Step 6:** Using drops of food coloring, color the Karo syrup red, the water green, and the rubbing alcohol blue.
- **Step 7:** Pour the liquids slowly in a cylinder in this order: Karo syrup, dish soap, water, vegetable oil, and rubbing alcohol.

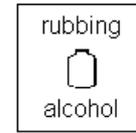
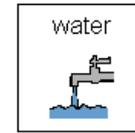
1. Cut out and paste the liquids below in the order you see them in the cylinder.

Lower Density: *lighter liquid*

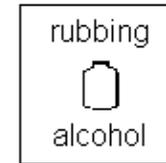
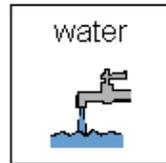


Higher Density: *heavier liquid*

Use these picture cards to complete the chart.



2. Which liquid had the highest density (weighed the most)?



3. Which liquid had the lowest density (weighed the least)?



4. Did any of the liquids mix completely?

YES

NO

5. Was your prediction correct?

YES

NO

# 7<sup>th</sup> Grade ESS 10.7.1

## Identify and Model the Causes of Day and Night

<b>Earth and Space Science</b>	<b>Content Standard 10:</b> Objects in the Universe: Students shall demonstrate and apply knowledge of objects in the universe using appropriate safety procedures, equipment, and technology.				
<b>Student Learning Expectation</b>  <b>Grade 7</b>	<b>Essence of Student Learning Expectation</b>	<b>Less Complex</b> —————> <b>More Complex</b>			
ESS.10.7.1 Identify and model the causes of night and day.	Night and day are caused by the rotation of the earth on its axis.	Using pictures to identify if an activity is a daytime or nighttime activity.	Act out the rotation of the earth, using a light to represent the sun, to illustrate the cause of day and night.	Use a globe and a flashlight to demonstrate the cause of day and night.	Label a diagram, draw picture, or make a model to illustrate the causes of day and night.

# Daytime or Nighttime Activity

in the classroom



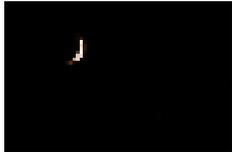
washing the car



daytime



nighttime



mowing the lawn



riding on the school bus



in the classroom



truck headlights on



using a flashlight



sleeping



star-gazing



## The Activity – What Makes Day and Night?

### MATERIALS

- dark paper to cover windows
- lamp with 200 watt bulb and shade removed
- wrap-around map (see following pages for world map which can be printed and wrapped around student's waist)
- sticker (optional)

### PROCEDURE

1. Darken room and turn on lamp. Explain that the lamp represents the Sun.
2. Ask a student to be the Earth. Place the wrap-around map around the student so that your town is on his/her chest. Make sure he or she can be seen by all students.
3. Mark your town with a sticker and ask students to focus on it as the Earth rotates.
4. Have student begin with his/her back to the lamp (night). Ask students if they think it is day or night in their town.
5. Have student rotate slowly in a counterclockwise fashion, until his/her left arm is pointed to the Sun. Ask students if they think it is sunrise or still night.
6. Student continues the counterclockwise rotation until he/she faces the Sun directly. Ask students what time it is now in their town. Students can see that it is noon, the middle of the day, when we get the most light from the Sun. You may need to prompt with additional questions.
7. Ask student to rotate a little more. Have him/her stop when his/her right arm is pointed toward the Sun. Ask students what time of day it is. They should be able to tell you that it is sunset.
8. Complete the day/night cycle by having the student return to his/her original position, with his/her back to the Sun. Students should be able to tell you that it is midnight.
9. Ask students to notice what time of day it is on the other side other Earth (student's back is facing the Sun and it is noon). Explain that one half of the Earth is always light while the other is dark. Emphasize that it is the Earth's own shadow that makes the night side of the Earth dark.
10. Repeat this demonstration. Select other student volunteers so that students will get a chance to view the day and night cycle several times. Explain that it takes 24 hours for the Earth to rotate completely.

## What Makes Day and Night ?



Map of the World



## Compare and Contrast Vertebrate Systems and Plant Organ Systems



*Am I a PLANT or an ANIMAL ?*



1. I have a stem .

 plant

 animal

2. I have a brain .

 plant

 animal

3. I have a muscle .

 plant

 animal

4. I have a leaf .

 plant

 animal

5. I have a thorn .

 plant

 animal

6. I have eyes .

 plant

 animal

7. I need water .

 plant

 animal

8. I have a heart .

 plant

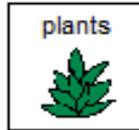
 animal

Name: \_\_\_\_\_

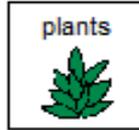
# Organ Systems

Where are the following organ systems found? Mark your answers.

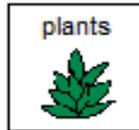
1. circulatory



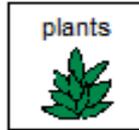
2. excretory



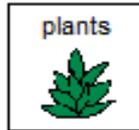
3. nervous



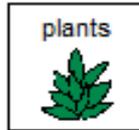
4. root



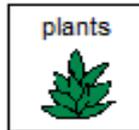
5. shoot system



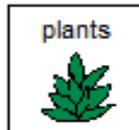
6. skeletal



7. digestive



8. reproductive



skeleton

Non-verbal students

Enlarge the answer choices and have the student choose their answer by eye gaze, point, or simple voice out-put devices.



For lower level students provide photo cues to assist in understanding each system.

# LIVING SYSTEMS



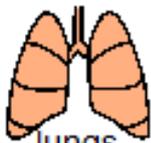
**ANIMALS** (Vertebrates)



**PLANTS**



eyes



lungs



thorn



**BOTH NEED**



sunlight



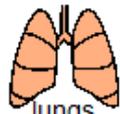
water



air



eyes



lungs



skeleton



muscle



skin



hair



sunlight



water



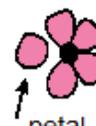
air



thorn



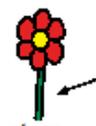
seeds



petal



roots



stem

# 7<sup>th</sup> Grade LS 2.7.6

## Human Body Systems

<b>Life Science</b>	<b>Content Standard 2:</b> Living Systems: Characteristics, Structure, and Function: Students shall demonstrate and apply knowledge of living systems using appropriate safety procedures, equipment, and technology.				
<b>Student Learning Expectation</b>	<b>Essence of Student Learning Expectation</b>	<b>Less Complex</b> → <b>More Complex</b>			
<b>Grade 7</b>					
LS.2.7.2 Analyze how two or more organs work together to perform a function (e.g., mouth and stomach to digest food)	Two or more organs work together in a body system to perform specific functions.	Identify organs that work together.  Example: --Mouth/stomach --Nerves/brain --Nose/lungs	Play a game to match organs that work together.  Example: --Concentration --Operation	Make a tracing of the student's body shape. Use picture symbols or line drawings of organs to place organ systems where they belong in the body.	Make a model of two organs that work together and write a report about it.  Example: Bones/muscles
LS.2.7.6 Identify human body systems: <ul style="list-style-type: none"> <li>• nervous</li> <li>• digestive</li> <li>• circulatory</li> <li>• respiratory</li> <li>• excretory</li> <li>• integumentary</li> <li>• skeletal/muscular</li> <li>• endocrine</li> <li>• reproductive</li> </ul>	There are different systems that work in the human body.	Identify systems in the human body  Example: --Picture symbols --Models --x-rays - Transparencies/overlays	Choose a body system and label some parts of that system.	Draw or trace a body system.	Explore body systems using technology.
LS.2.7.8 Investigate functions of human body systems.	Each body system has a different function.	Identify the job of human body systems  Example: --Digestive system breaks down food for use by the body. --Circulatory system moves blood through the body.	Sequence the activities of body systems  Example: Trace the movement of food through the body.	Sequence the activities of body systems and match each part to its job.	Name and describe the function of human body systems.

# 10<sup>th</sup> Grade CDL.7.B.22

## Major Body Systems

<b>Classification and the Diversity of Life</b>	<b>Content Standard 7.</b> Students shall demonstrate an understanding that organisms are diverse.				
<i>Student Learning Expectation</i>	<i>Essence of Student Learning Expectation</i>	<i>Less Complex</i> → <i>More Complex</i>			
CDL.7.B.22 Compare and contrast the major vertebrate classes according to their nervous, respiratory, excretory, circulatory, digestive, reproductive and integumentary systems  <b>Resources: United Streaming, Body Systems</b>	*Investigate the major body systems of vertebrates	*Recognize the major body systems of vertebrates  *Example: Outline the human body, include one body system, and label the major organs (e.g., digestive, respiratory)	*Match body systems to their major functions  Example: Use Internet activity to match body systems to their functions  <b>Resources: Body Systems</b>	Explain the function of body systems  Examples: Use graphic organizer or foldables	*Research and report information about the functions of various body systems  *Examples: Write a report; create a poster or slide presentation

## LS 2.7.6 & CDL.7.B.22

### Human body systems (nervous, digestive, etc.)

\*Remember these SLEs are referring to the different systems, not the different parts of the human body.

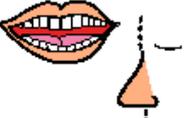
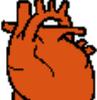
Some of the major systems of the human body include:

- Cardiovascular system: the blood circulation with heart, arteries, and veins
- Digestive system: processing food with mouth, esophagus, stomach and intestines
- Urinary system: eliminating wastes from the body
- Integumentary system: skin, hair, and nails
- Excretory system: removes excess, unnecessary or dangerous materials
- Muscular system: moving the body with muscles
- Nervous System: collecting, transferring and processing information with brain and nerves
- Respiratory system: the organs used for breathing, the lungs
- Skeletal system: structural support and protection through bones

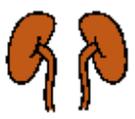
# Human Body Systems

## Matching Worksheet

Directions: Draw a line to match the body systems that work together.

<p>senses</p> 	<p>lungs</p> 
<p>breathe</p> 	<p>brain</p> 
<p>bones</p> 	<p>heart</p> 
<p>tongue</p> 	<p>skeleton</p> 
<p>blood</p> 	<p>small intestine</p> 

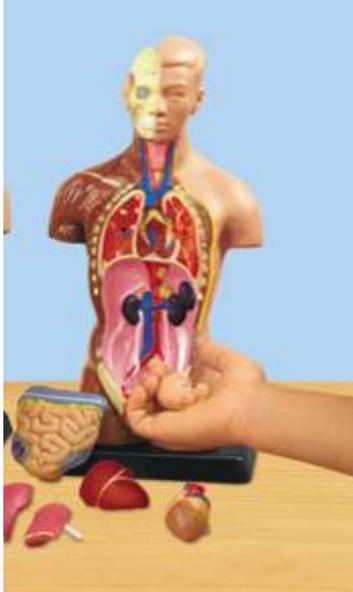
For your lower, non-verbal students, use models, books, videos to teach the lesson. Then provide a simple matching worksheet and a communication device to allow them the ability to provide their responses. Or simply give them two pictures from which to choose their answers.

<p>lungs</p> 	<p>brain</p> 	<p>heart</p> 	<p>skeleton</p> 
<p>large intestine</p> 	<p>small intestine</p> 	<p>kidneys</p> 	<p>skin</p> 

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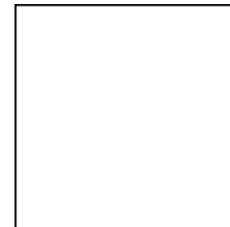
# Human Body Systems

For your higher functioning students, provide worksheets with the words and pictures to match the body systems.  
 \*Remember to also provide visuals or models prior to the worksheet.

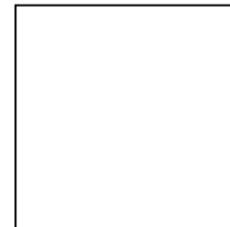


Identify systems in the human body by matching the parts of the body to the system.

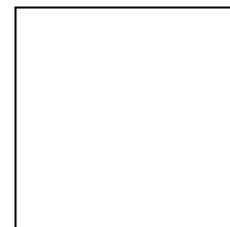
digestive



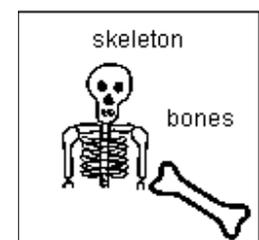
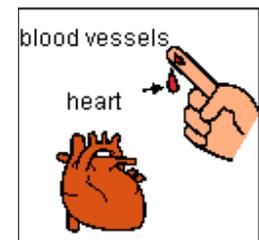
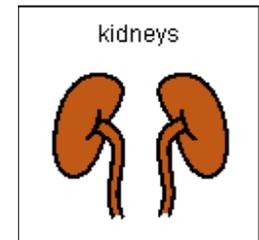
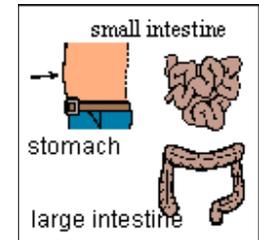
skeletal



circulatory



excretory



Cut and Paste activity

# Human Body Systems

## Human Body System Jobs

Identify the job of human body systems by matching the system to the job.

1. Which body system helps digest food?

2. Which body system helps you to breathe?

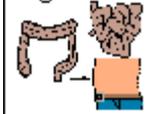
3. Which body system helps eliminate your body's waste?

4. Which body system helps protect you from germs?

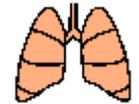
5. Which body system helps you get energy from the foods you eat?

6. Which body system carries nutrient rich blood and oxygen throughout your body?

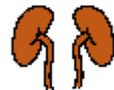
digestive



respiratory



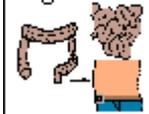
excretory



integumentary



digestive



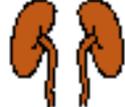
circulatory



# Organ Groups and Systems

LS 2.7.6 & CDL 7.B.22

Mark the correct system for each organ group.

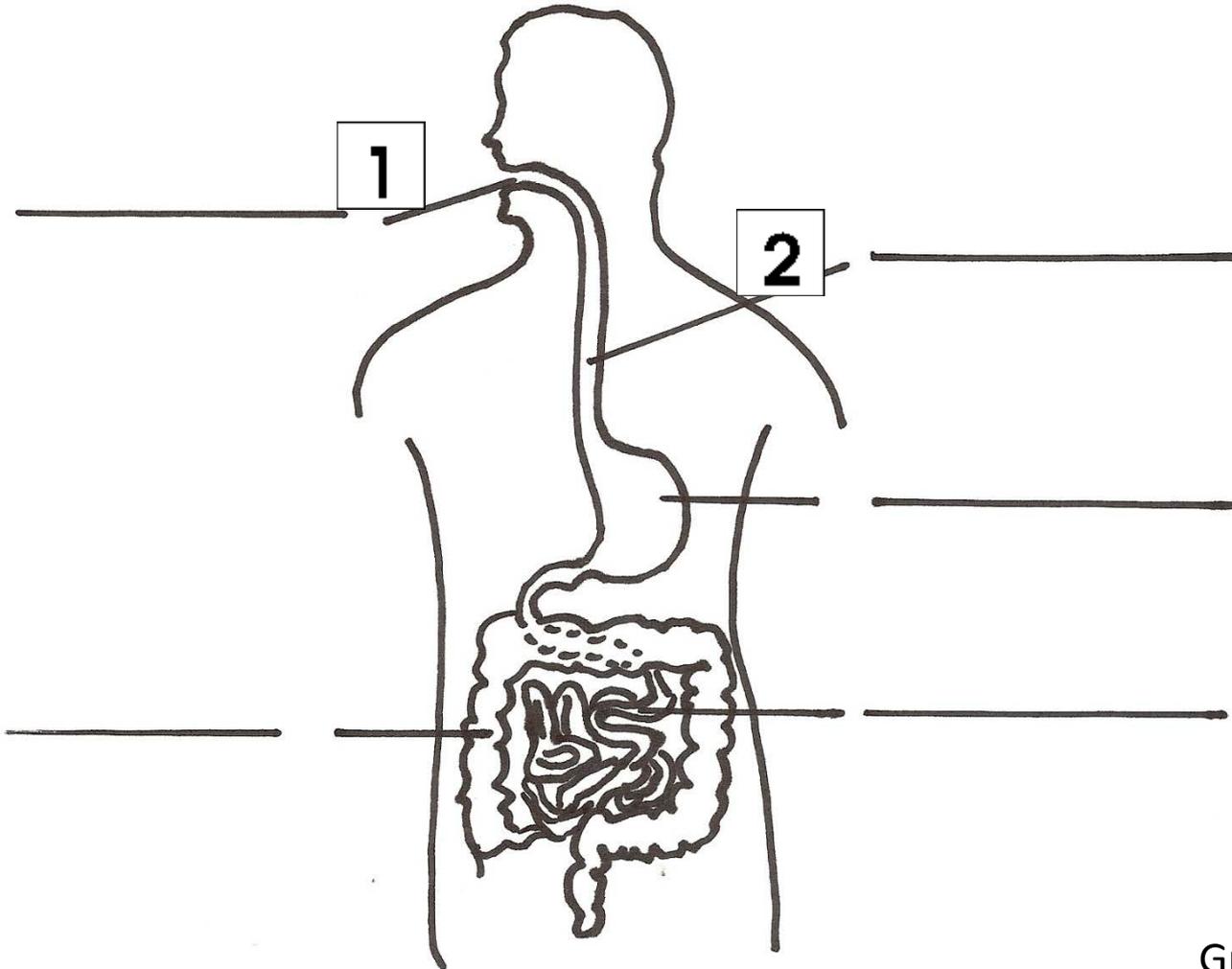
<p>brain  spinal cord  nerves </p>	<p>digestive</p>	<p>nervous</p>
<p>skeleton  bone </p>	<p>skeletal</p>	<p>excretory</p>
<p>heart  blood </p>	<p>shoot</p>	<p>circulatory</p>
<p>mouth  intestines  stomach </p>	<p>reproductive</p>	<p>digestive</p>
<p>fingernail  skin  sweat glands </p>	<p>integumentary</p>	<p>digestive</p>
<p>kidneys  bladder </p>	<p>root</p>	<p>excretory</p>

For higher functioning students, you can provide word choices from which to choose.

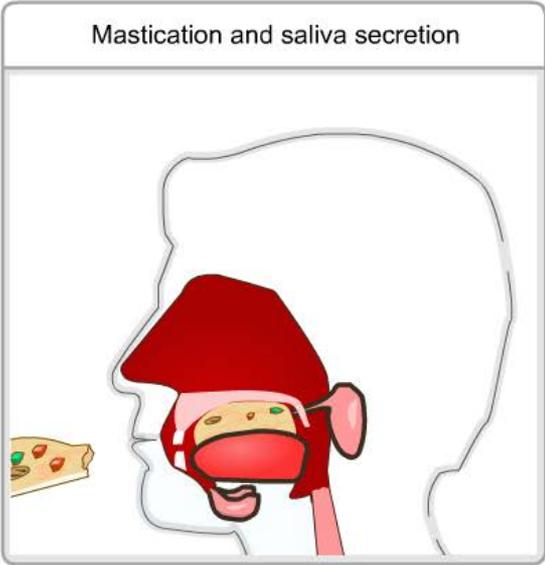
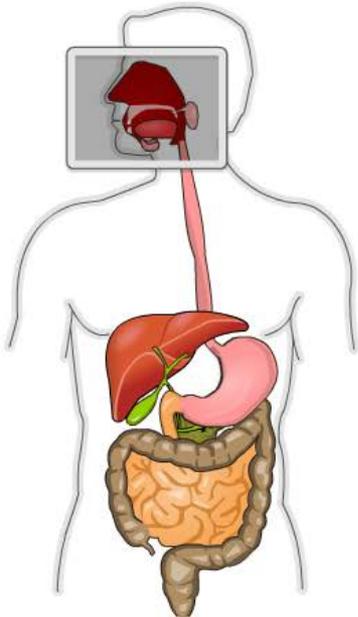
Sequence the activities of the digestive system by placing the numbers and labels on the correct organs in the order in which food passes through the body.

mouth

esophagus



### Digestive Tract



Show labels

