

Things Stick Around Lesson Plan

Essential Question / Objective

At the end of this lesson, students will be able to discuss the difference between humid and arid environments as it relates to the weathering of artifacts left at the monument by the Salado people as opposed to decomposition of modern items. They will explore the concept of preservation by looking at their own possessions and the importance of traveling in groups when going on a long journey.

Park Theme

Tonto National Monument's well-preserved Salado cliff dwellings and diverse artifacts, located within the Upper Sonoran Desert, provide opportunities to experience a thriving culture deeply rooted in its natural setting, provoking contemplation of our own connections to nature.

Standards

Fourth Grade

S04-S1C3-PO1: analyze data obtained in a scientific investigation to identify trends

S04-S1C3-PO2: Formulate conclusions based upon identified trends in data

S04-S1C4-PO1: Communicate verbally or in writing the results of an inquiry

S04-S1C4-PO2: Choose an appropriate graphic representation for collected data

S04-S1C4-PO3: Communicate with other groups or individuals to compare the results of a common investigation

S04-S6C3-PO6: Compare weather conditions in various locations (e.g., regions of Arizona, various U.S. cities, coastal vs. interior geographic locations)

SS04-S1C1-PO1: Use the following to interpret historical data: a. timelines – B.C.E and B.C.; C.E. and A.D.

SS04-S1C1-PO4: Describe how archaeological research adds to our understanding of the past

SS04-S1C2-PO3: Identify other groups (e.g., Patayan, Sinagua, Salado) residing in the Southwest during this period

SS04-S4C2-PO1: Describe how the Southwest has distinct physical and cultural characteristics

SS04-S1C10-PO2: Discuss the connections between current and historical events and issues from content studied in Strand 1 using information from class discussions and various resources

Fifth Grade

S05-S1C3-PO1: analyze data obtained in a scientific investigation to identify trends and form conclusions

S05-S1C4-PO1: Communicate verbally or in writing the results of an inquiry

S05-S1C4-PO2: Choose an appropriate graphic representation for collected data

S05-S1C4-PO3: Communicate with other groups or individuals to compare the results of a common investigation

SS05-S1C1-PO1: Use the following to interpret historical data: a. timelines – B.C.E and B.C.; C.E. and A.D.

SS05-S1C1-PO2: Construct timelines of the historical era being studied (e.g. presidents/world leaders, key events, people)

Science Glossary

Environment: sum of all external conditions affecting the life, development, and survival of an organism, including the biotic (living) and abiotic (non-living) elements.

Preservation: to keep in perfect or unaltered condition; maintain unchanged

Weathering: effect of exposure to the action of the elements

Background

The Mote Marine Lab of Sarasota, Florida, collected this information on the decomposition times of various marine debris samples.

ITEM.....	TIME TO DECOMPOSE
Glass Bottle.....	1 million years
Fishing Line.....	600 years
Plastic Bottles.....	450 years
Disposable Diapers.....	450 years
Aluminum Can.....	80-200 years
Foamed Plastic Buoy.....	80 years
Foamed Plastic Cups.....	50 years
Rubber-Boot Sole.....	50-80 years
Tin Cans.....	50 years
Leather.....	50 years
Nylon Fabric.....	30-40 years
Plastic Film Container.....	20-30 years
Plastic Bag.....	10-20 years
Cigarette Butt.....	1-5 years
Wool Sock.....	1-5 years
Plywood.....	1-3 years
Waxed Milk Carton.....	3 months
Apple Core.....	2 months
Newspaper.....	6 weeks
Orange or Banana Peel.....	2-5 weeks
Paper Towel.....	2-4 weeks

Additional Resources

http://des.nh.gov/organization/divisions/water/wmb/coastal/trash/documents/marine_debris.pdf

Materials

Acquire representations of at least seven items to be sequenced (ie plastic bag, diaper, apple core, milk carton etc. either actual items or pictures of them) as well as enough *Timeline*, *Items to Bring With You* (x2), and *What Would You Bring*, handouts for each student.

Procedure

In small groups or as a class, have students arrange the items from the Marine Lab Study in the order they decompose. After a few minutes, tell students which ones they got right and have them rearrange the rest until they get the correct order or time runs out. Have them add some or all of these items to the “Marine Lab Timeline” on their *Timeline* worksheet.

Ask students where you would find yucca fibers on this the “Marine Lab Timeline.”

Explain that archaeologists found yucca fiber sandals in the Upper Cliff Dwelling from 700 years ago, much longer than they would have lasted in a marine environment! Discuss what else they found up there using the *Artifacts from Tonto* PowerPoint.

Discuss where the Mote Marine Lab in Sarasota, Florida, is testing their samples (marine setting), and how it differs from the UCD environment (arid southwest). Explain that things last longer when sheltered from the elements and covered with sediment as opposed to exposed to agents of weathering like the wind and the ocean. Arizona’s environment and the shelter provided by the cave are why the dwellings and artifacts are still here.

Estimate how long modern items from the “Marine Lab” timeline would last in the dwellings. Have students place these on their “In the Dwellings” timeline. (Select modern items from the original timeline e.g. orange peel, aluminum can, plastic bottle.)

Explain that the Salado people left a lot of things behind when they left the Tonto Basin because they could only take what they could carry on their back. Have students fill out the *What Would You Bring* worksheet with items cut out from *Items to Bring With You* sheet. Sort students into small groups and fill out the other side in the same way. Discuss the benefits in traveling with others.

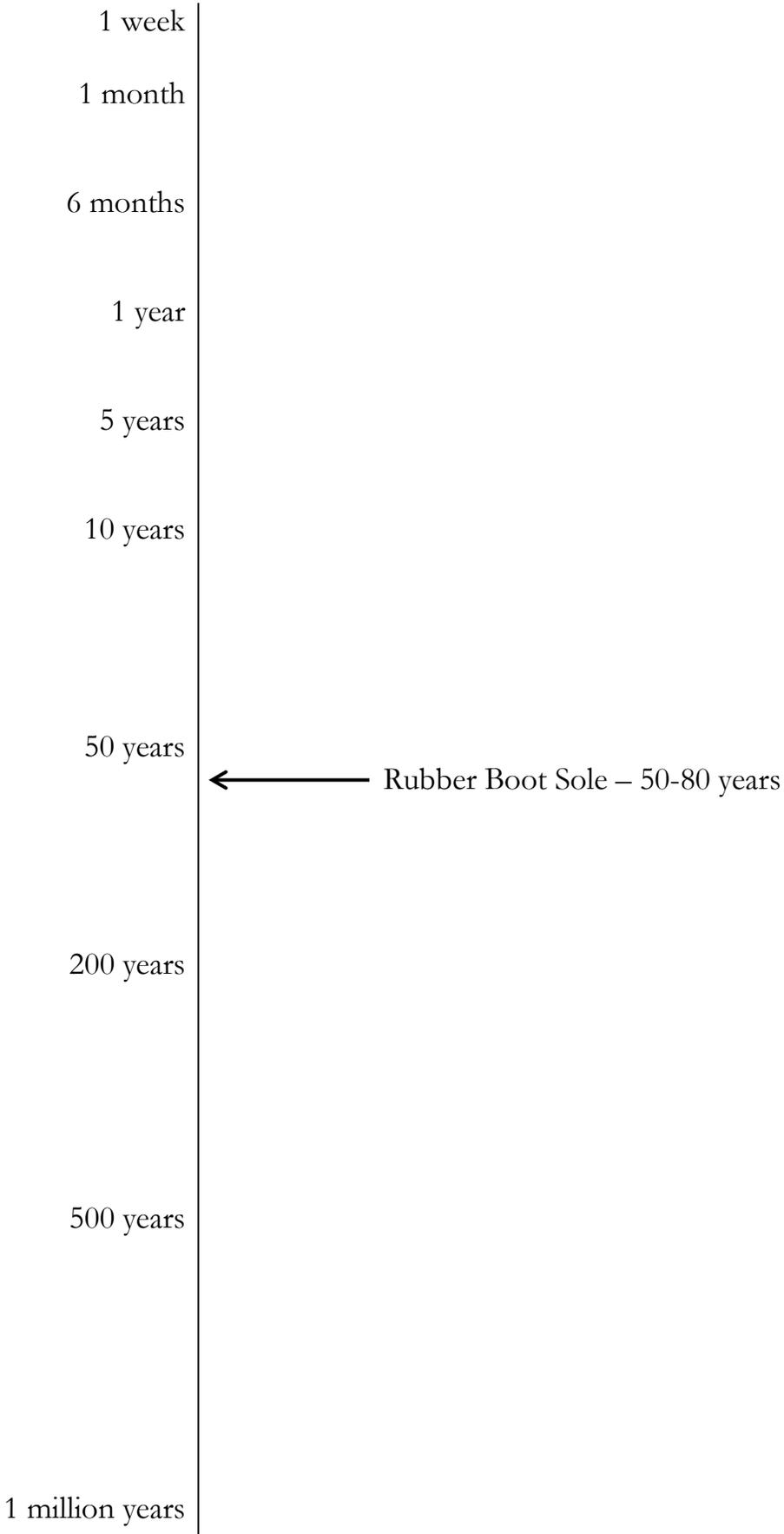
Further Discussion Questions

What is the difference between finding a yucca sandal in the dwellings versus finding a pack of chewing gum? What is the value of each to the archaeologist? To a hiker? Have you ever found something outside that didn’t look like it belonged there? Maybe aluminum cans or a plastic bottle? Share experiences!

Name: _____

Marine Lab Timeline

Working together, put the items in the order they decompose. Then, write the item next to the correct length of time it takes to decompose in a marine setting.



Name: _____

In the Dwelling Timeline

Working with your group, write the item next to the correct length of time it would take to decompose in the Tonto National Monument Cliff Dwellings.



← Yucca Fiber Sandals – 700 years

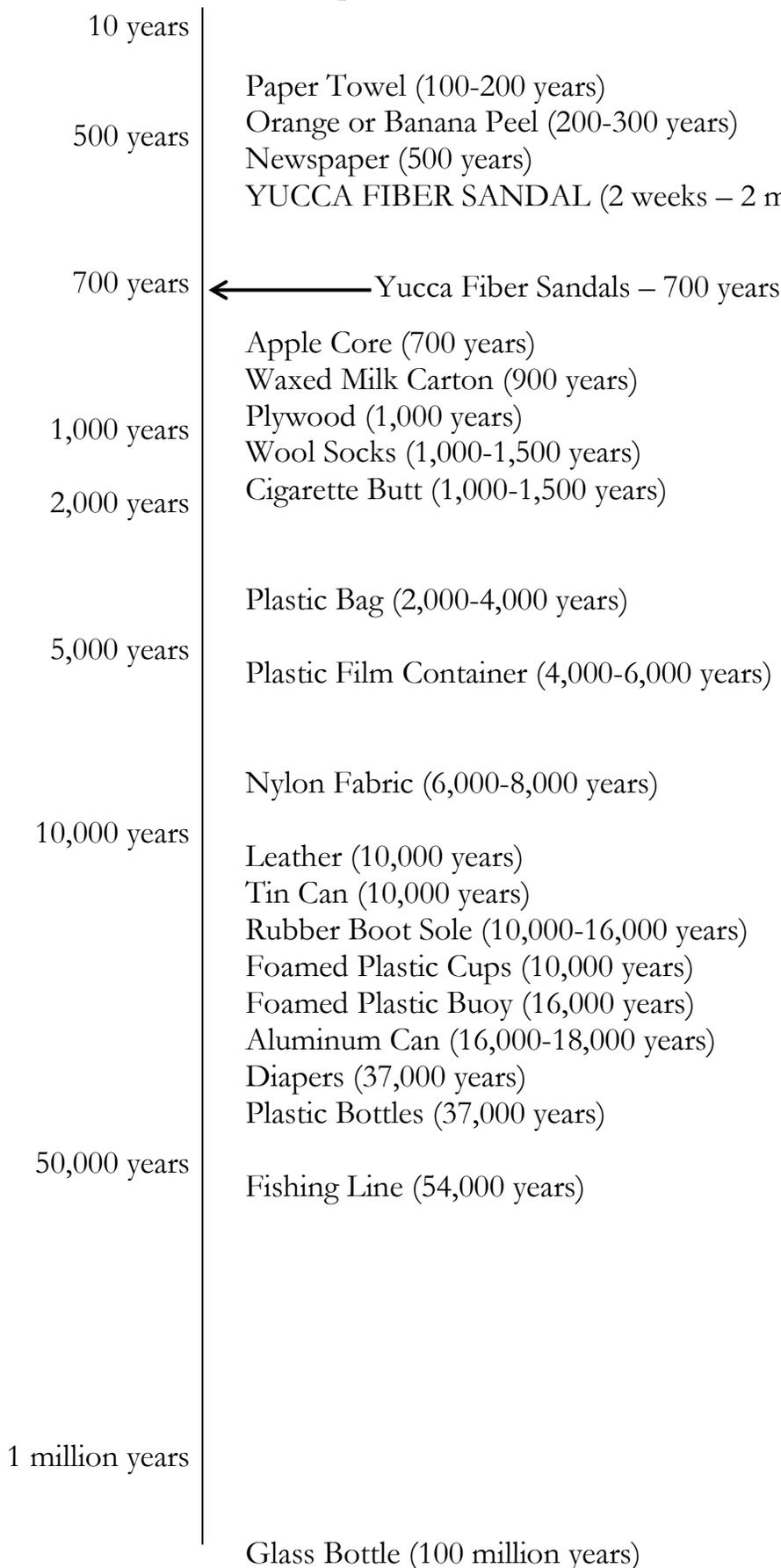
Marine Lab Timeline

Working together, put the items in the order they decompose. Then, write the item next to the correct length of time it takes to decompose in a marine setting.

1 week	Paper Towel (2-4 weeks)
	Orange or Banana Peel (2-5 weeks)
1 month	Newspaper (6 weeks)
	YUCCA FIBER SANDAL (2 weeks – 2 months)
	Apple Core (6 months)
6 months	Waxed Milk Carton (3 months)
1 year	Plywood (1-3 years)
	Wool Socks (1-5 years)
	Cigarette Butt (1-5 years)
5 years	
10 years	Plastic Bag (10-20 years)
	Plastic Film Container (20-30 years)
	Nylon Fabric (30-40 years)
50 years	Leather (50 years)
	Tin Can (50 years)
	← Rubber Boot Sole – 50-80 years
	Foamed Plastic Cups (50 years)
	Foamed Plastic Buoy (80 years)
200 years	Aluminum Can (80-200 years)
	Diapers (450 years)
	Plastic Bottles (450 years)
500 years	Fishing Line (600 years)
1 million years	Glass Bottle (1 million years)

In the Dwelling Timeline

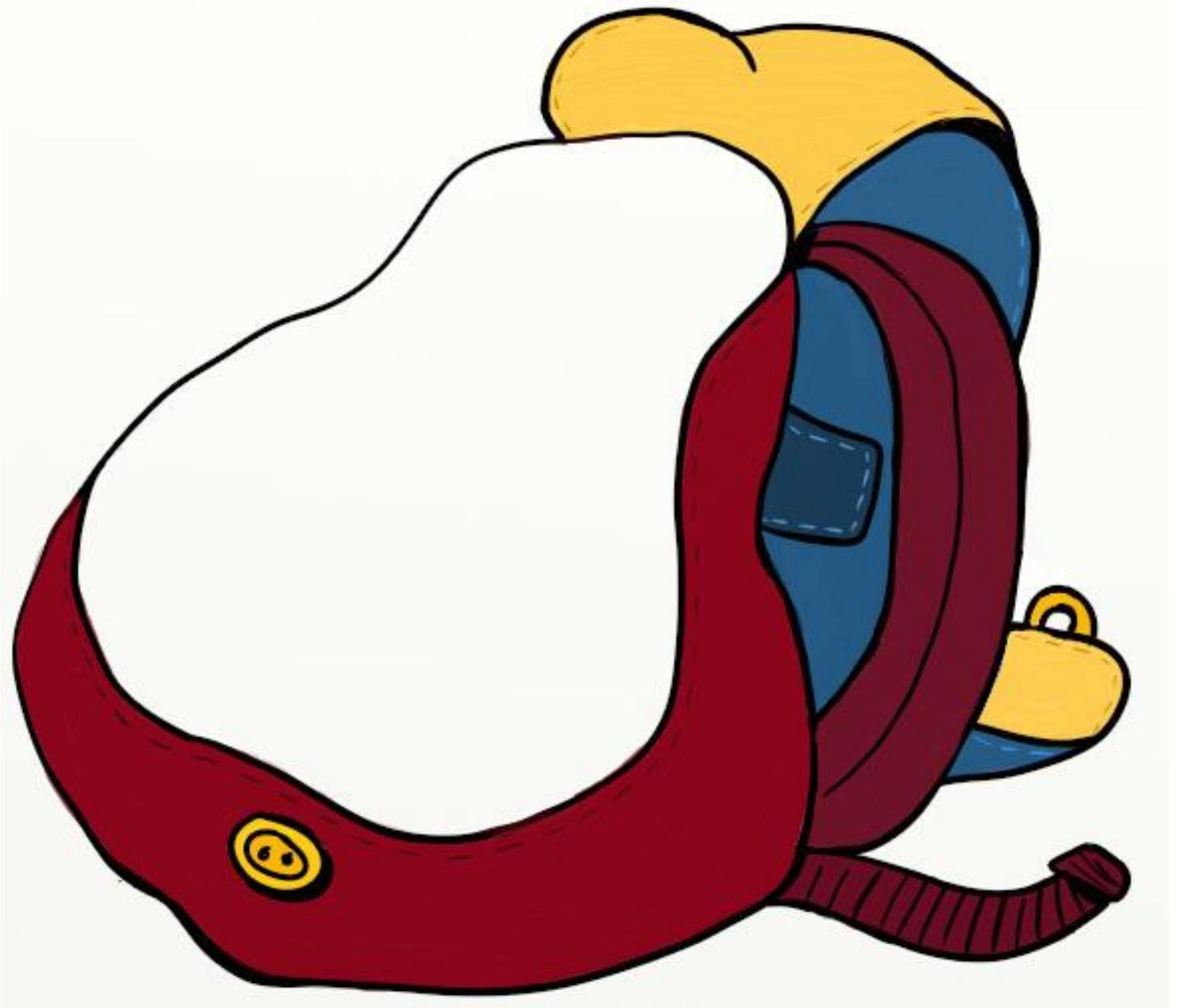
Working with your group, write the item next to the correct length of time it would take to decompose in the Tonto National Monument Cliff Dwellings.



Name: _____

What Would You Bring?

The Salado people left a lot of things behind when they moved on from the Tonto Basin because they could only take what they could carry on their back. What would you bring with you if you had to leave your home? Take a look at the Items to Bring With You, cut out the four you think are the most important, and glue or tape them into the backpack below.

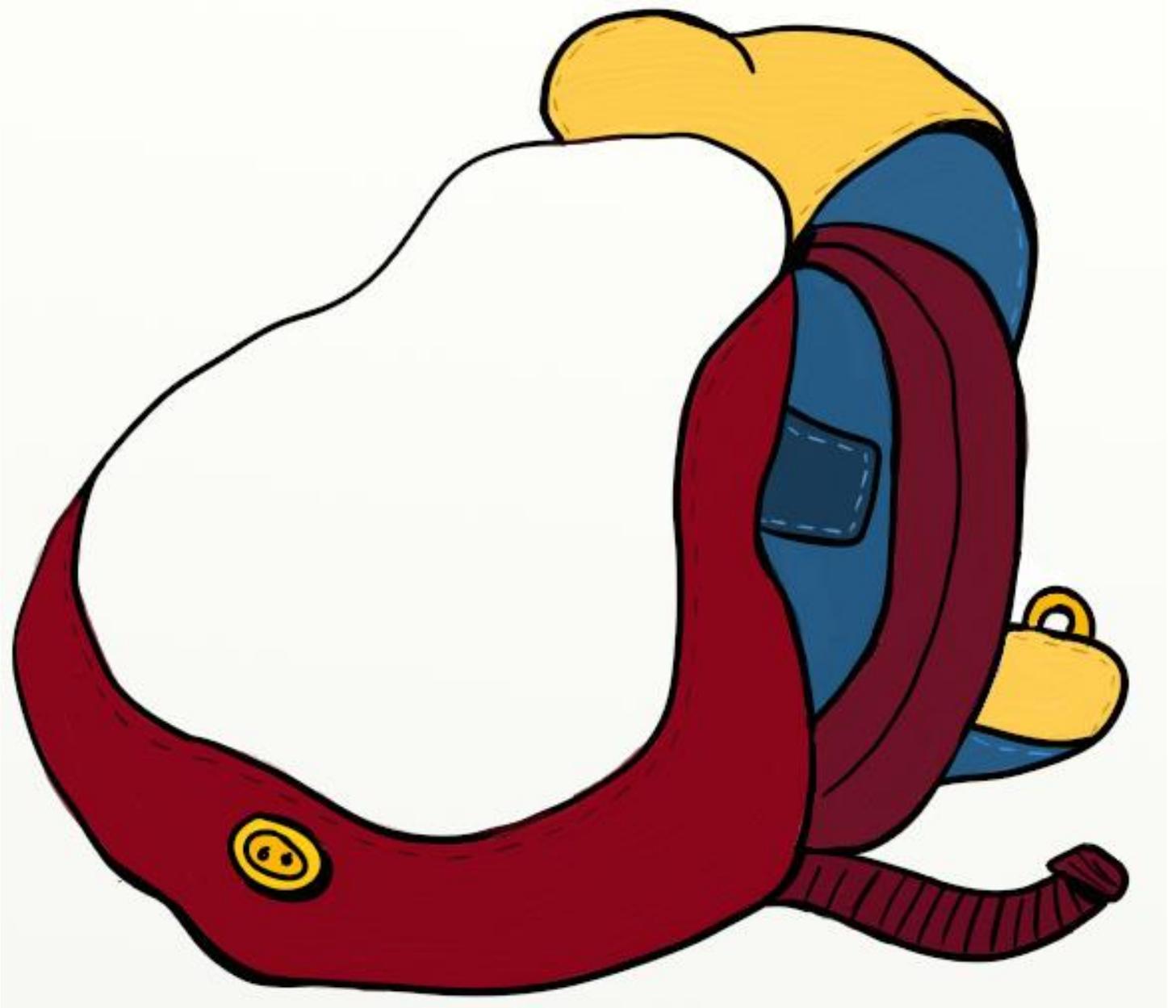


Think about all the things you would leave behind and how long they would be preserved. How would you want people to treat your bedroom when you left?

Name: _____

Let's Work Together!

The Salado people left the Tonto Basin 600 years ago in small groups and family units. They could bring a wider variety of items because they could share. In your team, select four items for each of you to carry in the same way you did for the individual backpack, keeping in mind that you can share.



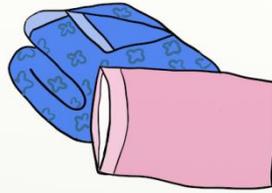
How does traveling on your own compare to traveling in a group? Which would you rather do?

Items to Bring With You

First Aid Kit



Blanket and Pillow



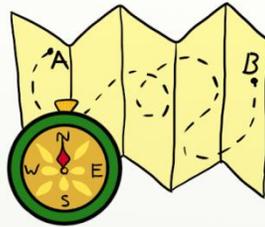
Chair



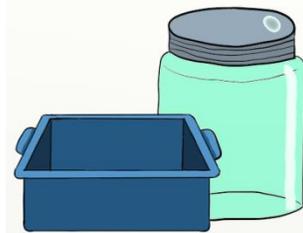
Cold Weather Gear



Map and Compass



Containers



Light Sources



Extra Food



Paper and Pencil



Pots and Pans



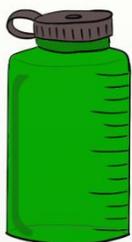
Sun Protection



Teddy Bear



Extra Water



Create Your Own:

Create Your Own:
