



Make compost in a jar!

Based on Leo and Layla's Helping Ninjas project

A composting jar is a fun way to learn about composting and watch it in action. This is a great project to do around Halloween because you can use chopped up pumpkin parts (minus the seeds) as the vegetable scraps. Make sure you add the soil to provide the decomposer microorganisms (tiny creatures, including bacteria and fungi) that help break down the food scraps to make compost.

What you need for each jar:

1 large (1-liter) empty mason jar or any other large jar (The bottom half of a 2-liter soda bottle also works. Ask an adult to carefully cut it in half for you.)

1 empty paper towel tube, cut into 1" pieces (Or, you can use 2 empty toilet paper tubes or half of a cardboard egg carton — cut or torn into 1" pieces.)

1 cup of vegetable or fruit scraps (leftover bits that would normally get thrown away)

1 cup of brown leaves

¼ cup of soil (dirt from the ground or packaged potting soil)

½ cup of water

spoon for mixing

Directions:

In a large jar, add the cut-up cardboard, vegetable or fruit scraps, dry leaves, and soil. Stir or place the lid on and shake. Add water. Stir or shake. **Take the lid off.** Place the jar on the kitchen counter or near a windowsill and watch the food scraps become compost! **IMPORTANT:** Continue to stir the jar once or twice a week. Add a tablespoon or two of water each week if the mixture looks dry.

It takes about four weeks for the mixture to become compost. You will know the compost is ready when the mixture looks like soil. The smaller the food scraps, the faster the mix will break down to become compost. Adding worms to your compost also speeds up the process, but you'll need to cover the jar with cheesecloth to keep the worms inside and provide the mixture and worms with air.

NOTE: Never add these to a compost pile: dairy products, like milk and cheese; anything that came from an animal, like meat or bones; pet waste; or fats. These items attract pests and make the compost pile stink.

EXTRA: Make a mini-landfill, too!

Follow the directions for making a compost jar above, but add just a few small trash items, such as empty and crumbled candy wrappers, bread ties, or plastic straws. **Keep the lid on the jar this time.** Do not put any worms in this jar. Do not stir or shake the jar at any time. Place the jar on the kitchen counter or near a windowsill and see what happens.

This covered jar acts more like a landfill because landfills do not get much air or get stirred. After a month, open the jar. How does it smell compared to the jar that wasn't covered? Are the leaves and food scraps broken down better or worse than the compost jar? Is the trash broken down? Is it better to landfill your food scraps and yard waste or to add them to a compost bin?

For more information on composting at home, visit www.epa.gov/recycle/composting-home and <https://kids.kiddle.co/Compost>.

Runaway Run-Ons

Read each run-on sentence. Fix it in two ways: on the first line, write two simple sentences; and on the second line, write one compound sentence using either a comma and coordinating conjunction or a semicolon.

1. Sophia mowed up the fallen leaves Jacob spread the shredded leaves on the garden.

2. Isabella raked leaves in her aunt's yard Mason took them to the compost pile.

3. Put the cover back on the compost bin put the rake back in the garage.

4. The America Recycles Day party will be held on November 15 Ms. Johnson's class will plan the party.

5. William, Emma, and Jayden are planning games for the party they asked their classmates for ideas.

6. The class is collecting cereal boxes they only want flattened, empty boxes.

7. Elijah gathered old magazines and colored paper David got scissors and glue.

8. Liam wrote a short story about recycling Aiden drew a poster for the party.

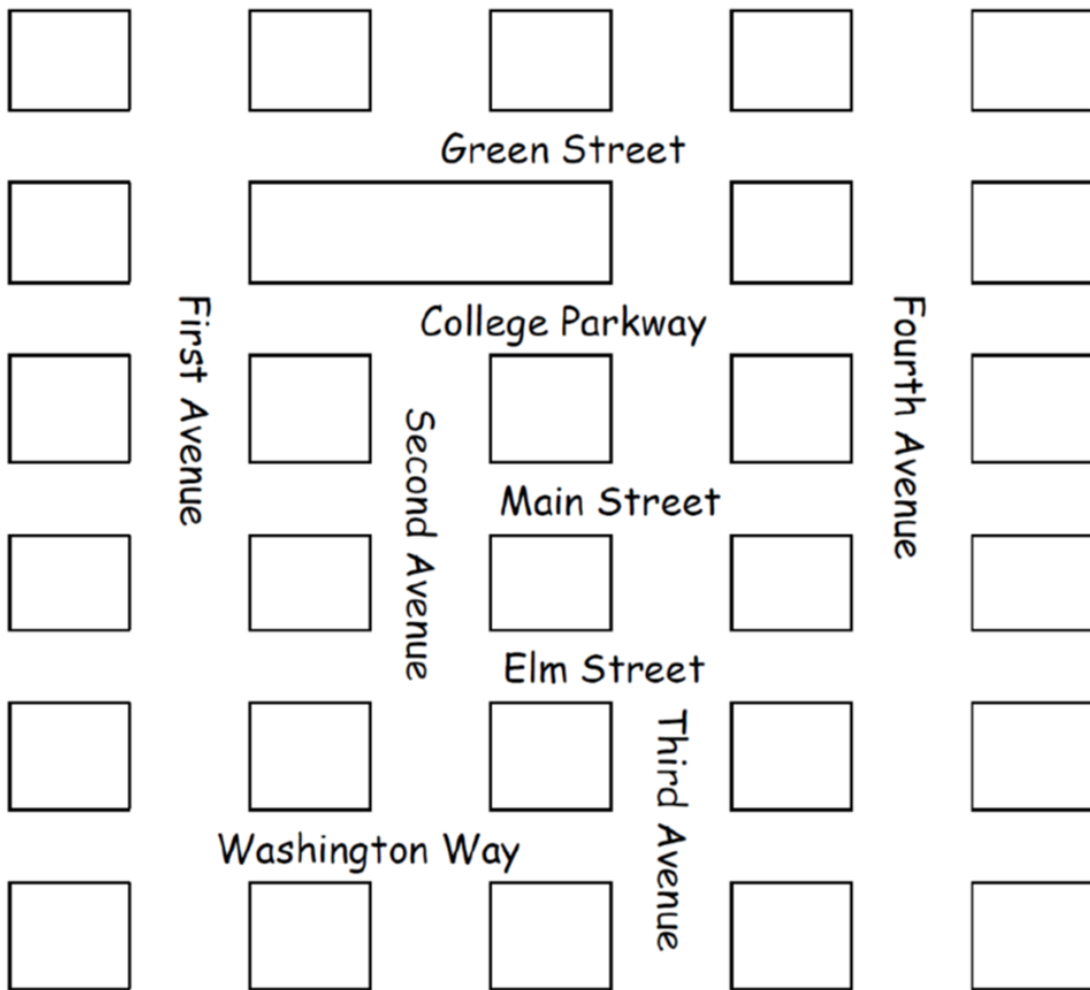
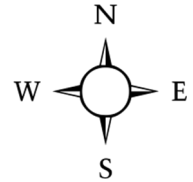
9. There will be game and craft stations at the party up to four students may be at each station.

10. Use the computer to make signs for each station set the signs onto the tables.

Take a Hike

Directions: Help Michael and Mykayla find their way to the New 2 You Game Store. Follow the route given. Then answer the questions below.

- ◆ Start at the corner of Second Avenue and Washington Way.
- ◆ Go one block north, turn left, and continue for one block.
- ◆ Walk north for three blocks.
- ◆ Go east for three blocks.
- ◆ Walk south for three blocks.
- ◆ Go west one block. The New 2 You Game Store is on the northeast corner. Put an X there.



Questions:

1. Where is the New 2 You Game Store? At the corner of _____ and _____
2. If each block is $\frac{1}{8}$ of a mile long, how far did you walk? _____
3. Was there a shorter way to get to the store from where you started? _____

If yes, describe that route: _____

Teacher Keys for Activities

Runaway Run-Ons (Answers will vary.)

1. ... fallen leaves. Jacob spread ...
... fallen leaves, and Jacob spread ...
2. ... aunt's yard. Mason took ...
... aunt's yard, and Mason took ...
3. ... compost bin. Put the rake ...
... compost bin, and put the rake ...
4. ...held on November 15. Ms. Johnson's class...
...held on November 15, and Ms. Johnson's ...
5. ...games for the party. They asked...
...games for the party, so they asked...
6. ...cereal boxes. They only...
...cereal boxes, but they only...
7. ...colored paper. David got...
...colored paper; David got...
8. ...about recycling. Aiden drew...
...about recycling, and Aiden drew...
9. ...stations at the party. Up to four...
...stations at the party, and up to four...
10. ...for each station. Set the signs...
...for each station, and set the signs...

Time After Time

1. 1997
2. The first America Recycles Day was being celebrated.

Puzzling Clues

1. E (Answers may vary.)
2. B or D (Answers may vary.)
3. Lucy
4. Sara
5. Lucy – 25, Jamal – 20, Santiago – 10, Sara – 5

Buried Treasure

1. The buried bag best represents a landfill because landfills have liners and are covered.
2. Items in the plastic bag break down more slowly than trash buried straight into the ground.
3. Landfills are not ideal for breaking down organic matter like apple cores quickly.
4. The buried, unbagged apple core breaks down fastest.
5. Composting

Supplying the Demand

1. A
2. B
3. A
4. B
5. A
6. B

Take a Hike

1. The New 2 You Game Store is at the corner of Elm Street and Third Avenue.
2. One and a half miles
3. Yes. From Second Avenue and Washington Way, go east one block, then north one block. (Answers may vary.)

Skills and Standards

Activity	Subject Areas	Skills Addressed
Runaway Run-Ons	<i>English/ Language Arts</i>	Writing correct, complete simple sentences and compound sentences with coordinating conjunctions; Demonstrating command of capitalization and punctuation, especially semicolons and commas in compound sentences Grade 4: 4.RF.2.3; 4.W.6.1E
Puzzling Clues	<i>Math</i>	Solving real-world problems involving addition, subtraction, and multiplication; Making sense of problems and seeking entry points to a solution; Modeling with mathematics; Representing and interpreting data; Reasoning abstractly and quantitatively Grade 4: 4.C; 4.AT.4 Process Standards: PS1; PS2; PS.4
Buried Treasure	<i>Science</i>	Following precisely a multi-step procedure when carrying out experiments; Investigating the action of different decomposers and comparing their roles in the ecosystem; Describing methods humans currently use to extend the use of natural resources; Constructing and performing fair investigations in which variables are controlled; Identifying a problem and designing solutions; Investigating ways individual communities within the United States protect the Earth's resources and environment Grade 4: 4.LS.2; 3-5.E.1; 3-5.E.2; 3-5.E.3 Process Standards: SEPS.1-8
Time After Time	<i>Social Studies</i>	Understanding events and developments that brought important changes; Demonstrating an understanding of civic issues; Examining ways people have tried to solve environmental problems Grade 4: 4.1.13; 4.2.6
	<i>Math</i>	Adding whole numbers; Solving real-world problems involving addition of multi-digit whole numbers Grade 4: 4.C.1; 4.AT.1; 4.DA.1
Supplying the Demand	<i>Social Studies</i>	Explaining that prices change as a result of changes in supply and demand for specific products; Understanding that buyers and sellers interact to determine the prices of goods and services Grade 4: 4.4.4
Article Text	<i>English/ Language Arts</i>	Reading and comprehending nonfiction, informational text; Applying context clues to determine meaning of unknown words; Determining meaning of content specific words and phrases in nonfiction text; Developing media literacy Grade 4: 4.RN.1; 4.RN.2.1; 4.RN.2.2; 4.RN.3.1; 4.RN.4.1; 4.RV.2.1; 4.RV.3.2; 4.ML.1