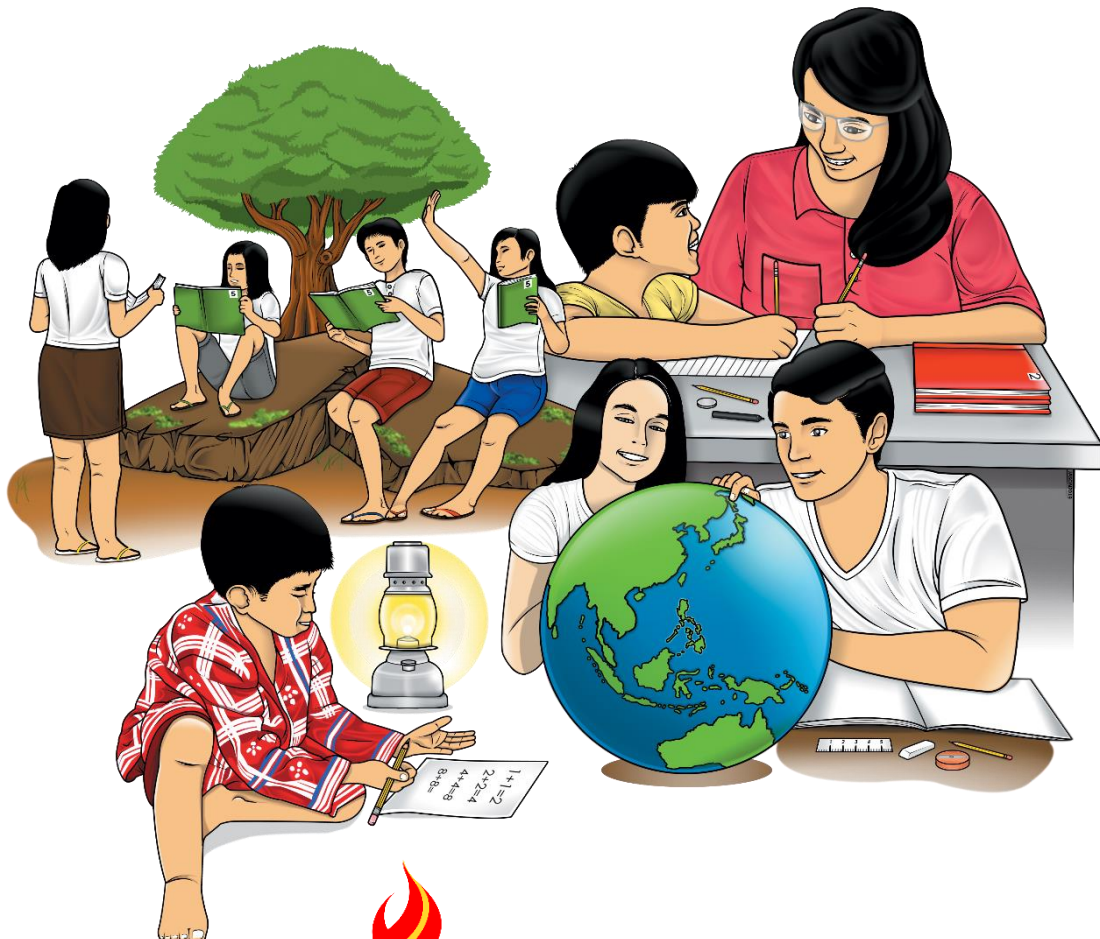


# Science

## Quarter 1 – Module 3

### Lesson 3: Designing a Product Out of Local and Recyclable Materials



**Science – Grade 5**  
**Alternative Delivery Mode**  
**Quarter 1 – Module 4: Designing a Product Out of Local and Recyclable Materials**  
**First Edition, 2020**

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**5**

# **Science**

**Quarter 1 – Module 3**

**Lesson 3: Designing a Product  
Out of Local and Recyclable  
Materials**

# Introductory Message

For the facilitator:

Welcome to the **Science Grade 5** Alternative Delivery Mode (ADM) Module on **Designing a Product Out of Local and Recyclable Materials!**

This module was collaboratively designed, developed and reviewed by educators both from public and private institutions to assist you, the teacher or facilitator in helping the learners to meet the standards set by the K to 12 Curriculum while overcoming their personal, social, and economic constraints in schooling.

This learning resource hopes to engage the learners into guided and independent learning activities at their own pace and time. Furthermore, this also aims to help learners acquire the needed 21st century skills while taking into consideration their needs and circumstances.

As a facilitator, you are expected to orient the learners on how to use this module. You also need to keep track of the learners' progress while allowing them to manage their own learning. Furthermore, you are expected to encourage and assist the learners as they do the tasks included in the module.

For the learner:

Welcome to **Science Grade 5** Alternative Delivery Mode (ADM) Module on **Designing a Product Out of Local and Recyclable Materials!**

This module was designed to provide you with fun and meaningful opportunities for guided and independent learning at your own pace and time. You will be enabled to process the contents of the learning resource while being an active learner.

This module has the following parts and corresponding icons:



***What I Need to Know***

This will give you an idea of the skills or competencies you are expected to learn in the module.



***What I Know***

This part is composed of a 10-item activity in order to check what you already know about the lesson to take. If you get all the answers correct (100%) you may decide to skip this module.



***What's In***

This is a brief drill or review to help you link the current lesson with the previous one.



***What's New***

In this portion, the new lesson will be introduced to you in various ways; a story, a song, a poem, a problem opener, an activity or a situation.



***What is It***

This section provides a brief discussion of the lesson. This aims to help you discover and understand new concepts and skills.



***What's More***

This comprises activities for independent practice to solidify your understanding and skills of the topic. You may check the answers to the exercises using the Answer Key at the end of the module.



***What I Have Learned***

This includes questions or fill on the blank sentence/paragraph to process what you learned from the lesson.



***What I Can Do***

This section provides an activity which will help you transfer your new knowledge or skill into real life situations or concerns.



***Assessment***

This is another 10-point task which aims to evaluate your level of mastery in achieving the learning competency.



### ***Additional Activities***

In this portion, another activity will be given to you to enrich your knowledge or skill of the lesson the learned.



### ***Answer Key***

This contains answers to all activities in the module.

At the end of this module you will also find:

### ***References***

This is a list of all sources used in developing this module.

The following are some reminders in using this module:

1. Use the module with care. Do not put unnecessary mark/s on any part of the module. Use a separate sheet of paper in answering the exercises.
2. Don't forget to answer *What I Know* before moving on to the other activities included in the module.
3. Read the instruction carefully before doing each task.
4. Observe honesty and integrity in doing the tasks and checking your answers.
5. Finish the task at hand before proceeding to the next.
6. Return this module to your teacher/facilitator once you are through with it.

If you encounter any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator. Always bear in mind that you are not alone.

We hope that through this material, you will experience meaningful learning and gain deep understanding of the relevant competencies. You can do it!



## ***What I Need to Know***

The process of recycling involves the collection and processing of materials that would be thrown away as trash and turns them into new products, with different use or purpose from its original form. Recycling can benefit your community and the environment.

Why should we recycle? What benefits do we get from recycling?

Recycling reduces the waste sent to designated dumping areas or landfills. It results in the conservation of our natural resources such as lumber, plastics, water, and other minerals. It also prevents pollution by reducing the need to collect new materials.

After going through this module, you are expected to design a product out of local and recyclable solid and/or liquid materials to make useful products.



## What I Know

A. Directions: Draw a happy face (☺) if the picture shows a recycled material and a sad face (☹) if the not.



[https://commons.wikimedia.org/wiki/File:Botte\\_flower\\_pots.jpg](https://commons.wikimedia.org/wiki/File:Botte_flower_pots.jpg)



<https://www.peakpx.com/550665/snack-wrapper-woven-shoulder-bag>



<https://www.peakpx.com/639703/marguerite-flowers-summer-flowers-flower-fragility>



[https://commons.wikimedia.org/wiki/File:Pink\\_Birkin\\_bag.jpg](https://commons.wikimedia.org/wiki/File:Pink_Birkin_bag.jpg)



[https://commons.wikimedia.org/wiki/File:Vase\\_Japan\\_Meiji\\_period\\_late\\_1800s\\_AD\\_enamel\\_with\\_silver\\_and\\_copper\\_-\\_Dallas\\_Museum\\_of\\_Art\\_-\\_DSC05123.jpg](https://commons.wikimedia.org/wiki/File:Vase_Japan_Meiji_period_late_1800s_AD_enamel_with_silver_and_copper_-_Dallas_Museum_of_Art_-_DSC05123.jpg)



B. Directions: Match the recyclable materials in Column A with the product that can be made out of it in Column B.

**A**

**B**



1. tin can

[https://commons.wikimedia.org/wiki/File:Empty\\_tin\\_can2009-01-19.jpg](https://commons.wikimedia.org/wiki/File:Empty_tin_can2009-01-19.jpg)



A. paper flower

<https://www.pxfuel.com/en/free-photo-jdhv>



2. glass bottle

[https://commons.wikimedia.org/wiki/File:Empty\\_Wine\\_bottle.jpg](https://commons.wikimedia.org/wiki/File:Empty_Wine_bottle.jpg)



B. lantern

<https://www.needpix.com/photo/757772/upcycling-plastic-bottle-flower-art-street-art-light-bulb-abstract>



3. tires

[https://commons.wikimedia.org/wiki/File:Recycled\\_tires.jpg](https://commons.wikimedia.org/wiki/File:Recycled_tires.jpg)



C. pen container

[https://www.123rf.com/photo\\_76885131\\_colored-pencils-and-scissors-in-a-decorative-tin-can-recycled-tin-can-for-storage-of-stationery-isol.html](https://www.123rf.com/photo_76885131_colored-pencils-and-scissors-in-a-decorative-tin-can-recycled-tin-can-for-storage-of-stationery-isol.html)



4. newspaper

<https://www.123rf.com/stockphoto/newspaper.html?oriSearch=recycled+wine+bottle&sti=njviafdr4pli4p6gs|&mediapopup=43673642>



D. vase

<https://www.pickpik.com/deco-decoration-jewellery-ornament-home-garden-128128>



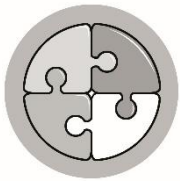
5. plastic bottle

<https://www.needpix.com/photo/868612/bottle-plastic-white-packing-3d-three-dimensional-mockup>



E. plant pot

[https://commons.wikimedia.org/wiki/File:Tires\\_recycled\\_as\\_a\\_minion\\_garden\\_art\\_1.jpg](https://commons.wikimedia.org/wiki/File:Tires_recycled_as_a_minion_garden_art_1.jpg)

**Lesson****3****Designing a Product Out of Local and Recyclable Materials*****What's In***

- A. Directions: Identify the proper technique to minimize waste in each situation below. Choose your answer from the list of 5R's in the word below.

Reduce

Reuse

Recycle

Repair

Recover

1. Danny uses glue to reattach the sole of his shoes.
  2. Lanie decides to give her small dresses to her cousin.
  3. The Grade 5 class uses grass clippings for composting.
  4. Eliza refuses to buy a new bag because she has three unused new bags.
  5. Mrs. Flores leads a group of women to make flowers out of candy wrappers and used plastics.
- B. Directions: Write AGREE if the statement is correct and DISAGREE if not.
1. Put your leftover food together with other trash.
  2. Burn the old tires and broken plastic toys at the backyard.
  3. Segregate glass wastes from plastic, papers, and rubbers.
  4. Bury dry leaves and rotten fruits and vegetables under the soil.
  5. Use the empty mayonnaise jar as candy jars or food storage jars.



## ***What's New***

Directions: Read the situation below then answer the question and do the task that follow.

Justine noticed that most of his classmates drink soft drinks during recess. This morning their Science teacher told them to make a recycled product for their Science project. He decided to collect the empty bottles in the recycle bin for his project.

- What product can he make out of the empty plastic bottles?
- Draw the product you can think of.



## ***What is It***

**Waste Management** refers to the practice of proper waste disposal. Waste refers to used or consumed products or materials. A very good example of this is garbage.

Waste Management is implemented anywhere to clean the environment and make everyone healthy.

The kind of waste management we follow nowadays is the 5Rs in Waste Management (Reduce, Reuse, Recycle, Recover, Repair).

The ultimate goal of the 5Rs to waste management is to free planet Earth from any kind of garbage's situation referred to as zero waste. Each "R" focuses on a way to achieve "zero waste".

Designing a product out of local recyclable solid and/or liquid materials in making useful products is an application of waste management. With this technique, the 5Rs in Waste Management will also be applied, which is more on recycling.

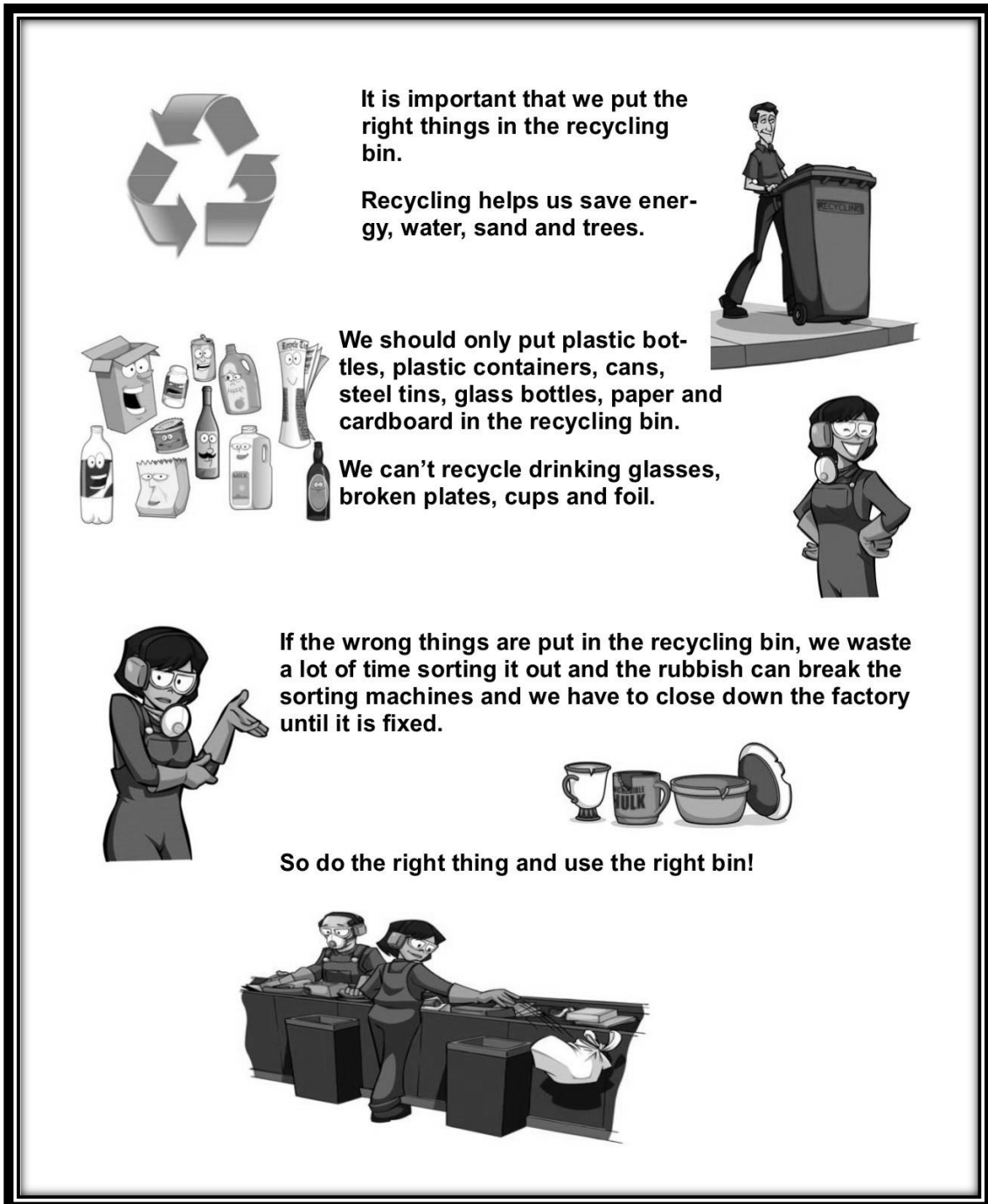
Recycling the materials to a new product design, reduce waste as much as possible. Non-biodegradable materials such as plastic, metals, cans and rubbers will be reduced through reusing and recycling.


Recycling is one of the simple things that you can do which results to a positive impact for the environment. Recycling is important to the natural environment and us. We must act fast as the amount of waste we create is increasing all the time.

## What items can and cannot be recycled?


Almost all materials can be recycled depending upon its physical condition – wet or dry, whole or broken/cut to pieces, fragile or durable, among others.


Items that can be recycled include paper, glass bottles/jars, plastics, clothes, etc. Meanwhile, items that can't be recycled include plastic wraps, ceramics, plastic bags, etc.





 It is important that we put the right things in the recycling bin.


Recycling helps us save energy, water, sand and trees.

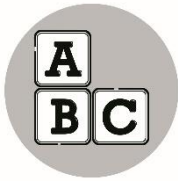
 We should only put plastic bottles, plastic containers, cans, steel tins, glass bottles, paper and cardboard in the recycling bin.

 We can't recycle drinking glasses, broken plates, cups and foil.

 If the wrong things are put in the recycling bin, we waste a lot of time sorting it out and the rubbish can break the sorting machines and we have to close down the factory until it is fixed.

 So do the right thing and use the right bin!





# What's More

## Activity 1

Directions: On a separate sheet of paper, draw the items that can be placed in your recycle bin. Are all the waste materials recyclable?



## Activity 2

Directions: Match the product that can be made from the following recyclable materials.

### A (Recyclable Material)

1. Plastic bottles

2. Old magazines

3. Empty Tin Can

4. Water sprinkler

5. Egg shells

### B (Product)



A.

<https://pixabay.com/photos/eggshell-egg-cups-herbs-hairstyle-4042471/>



B.

[https://commons.wikimedia.org/wiki/File:Bottle\\_flower\\_pots.jpg](https://commons.wikimedia.org/wiki/File:Bottle_flower_pots.jpg)



C.

<https://www.pikrepo.com/nfyin/yellow-watering-can-with-fruits-on-green-grass-field-during-daytime>



D.

<https://www.pxfuel.com/en/free-photo-jdhhv>



E.

[https://www.123rf.com/photo\\_76885131\\_colored-pencils-and-scissors-in-a-decorative-tin-can-recycled-tin-can-for-storage-of-stationery-isol.html](https://www.123rf.com/photo_76885131_colored-pencils-and-scissors-in-a-decorative-tin-can-recycled-tin-can-for-storage-of-stationery-isol.html)

### **Activity 3**

Directions: Draw a design of a useful product that can be made from any of the following recyclable materials:

- Plastic bottles
- Old newspapers/ magazines
- Cans
- Glass bottles
- Cardboard
- Plastic containers
- Bottle caps
- Old clothes

Be guided with the following questions in designing your product.

- What material is readily available in the community?
- What tools should I use in making the recycled product?
- What steps should I do in making the product?
- Will the product be useful?
- How will my recycled product look like?



## ***What I Have Learned***

Directions: Fill in the blanks with the appropriate word/phrase. Choose your answer from the box below.

design	recycling	recyclable
non-biodegradable	useful	waste management

Designing a product out of local \_\_\_\_\_(1)\_\_\_\_\_ solid/liquid materials in making \_\_\_\_\_(2)\_\_\_\_\_ products is an application of \_\_\_\_\_(3)\_\_\_\_\_. With this technique, the 5Rs in Waste Management will also be applied.

Recycling the materials to a new product design, reduce waste as much as possible. \_\_\_\_\_(4)\_\_\_\_\_ waste materials such as plastics, metals, cans and rubbers will be reduced through reusing and \_\_\_\_\_(5)\_\_\_\_\_.



## ***What I Can Do***

Most of the foods that we have now are packed or wrapped using plastic. What can you do with these wrappers? How can this contribute to make our mother earth a healthy one? If you will design a product made from plastic wrappers, what will you create?





## Assessment

A. Directions: Match the ways on how you can recycle the waste materials below.  
The ways to recycle can be used more than once. Write the letter only.

### Waste Materials

1. old tires
2. glass jar
3. plastic bottle
4. candy wrappers
5. colored magazines

### Ways to Recycle

- A. food storage jar
- B. origami flowers
- C. pot for plants
- D. window curtain
- E. Christmas lantern

B. Directions: Design your useful product from the solid/liquid recyclable materials you can find at home, or in your locality and in school.

Rubrics for the Designed Product

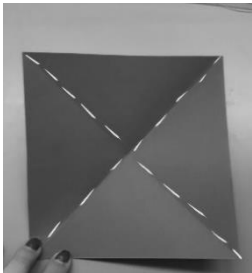
Criteria	Description	Points	Score
Use of recyclable materials in designing the product	1-3 recyclable materials used in the product design	1	
	4-6 recyclable materials used in the product design	2	
Environmental Impact of the Product	The product has no adverse impacts on the environment	1	
	The product contains adverse impacts on the environment	0	
Importance to the user	The designed product has 1-2 related uses to the user	1	
	The designed product has 3-5 related uses to the user	2	
Total Expected Points		5	



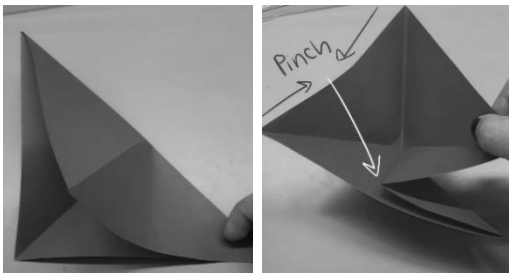
## ***Additional Activities***

Directions: Try any of these fun recycling activity ideas. Follow the steps as shown in the pictures. Use old magazines or new papers.

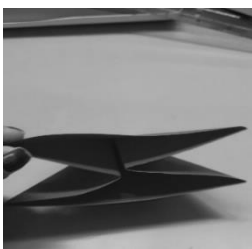
Step 1: Fold the paper in half twice.



Step 2: Fold one end down and fold over it with another end.



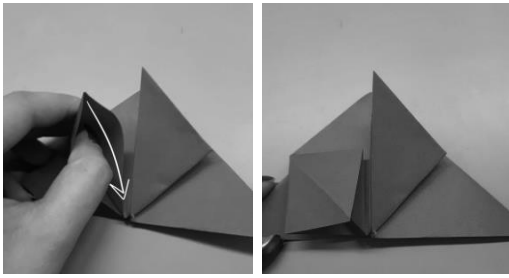
Step 3: Do the same on the other side.



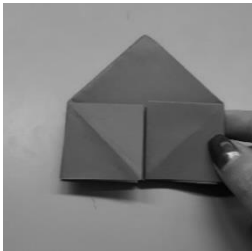
Step 4: Fold the side folds up to the middle.



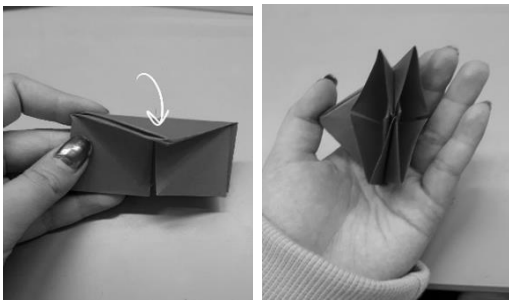
Step 5: Open the folds and fold them down into squares.



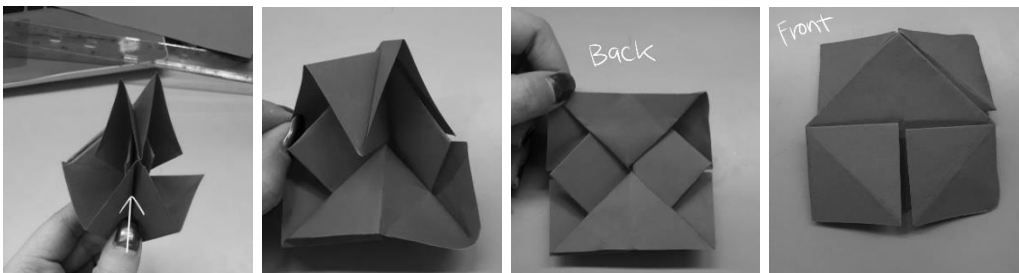
Step 6: Repeat the same step on the other side.



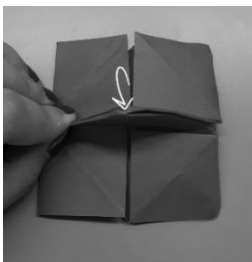
Step 7: Fold the triangle down.



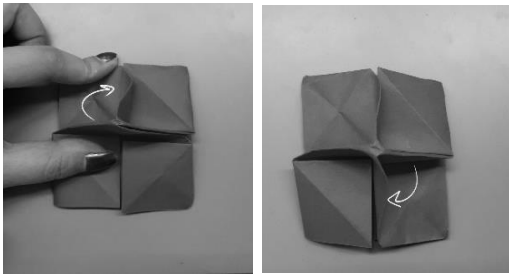
Step 8: Push the Triangles Down (as Shown in Pictures) and Flip



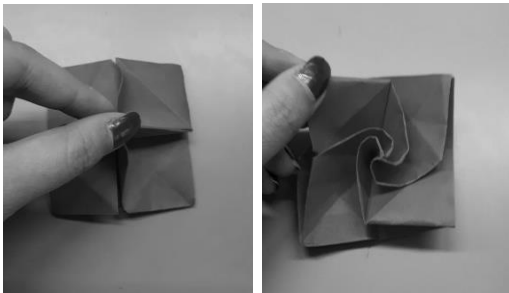
Step 9: Fold up the triangle.



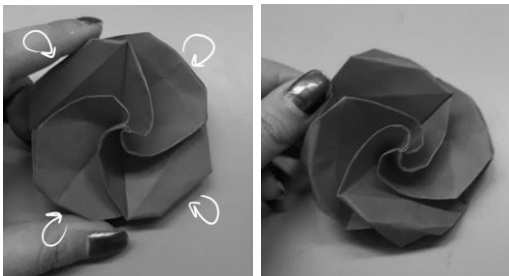
Step 10: Fold 2 of the squares up (as shown in pictures).



Step 11: Pinch the top, then twist it.



Step 12: Fold down the sides to create petals, then twist some more to shape the flower nicely!



Step 13: You're Done!



<https://www.instructables.com/id/Origami-Flower-5/>



# Answer Key

**What I Know**

**A.**  
 1. 😊  
 2. 😊  
 3. 😊  
 4. 😊  
 5. 😊

**B.**  
 1. C  
 2. D  
 3. E  
 4. A  
 5. B

**What's In**

**A.**  
 1. Repair  
 2. Reuse  
 3. Recover  
 4. Reduce  
 5. Recycle

**B.**  
 1. disagree  
 2. disagree  
 3. agree  
 4. agree  
 5. agree

**What's More**

**Activity 1**  
 Tin cans, news paper, plastic bottle, soft drink  
 can, milk container, motor oil container, old cup

**Activity 2**  
 1. B  
 2. D  
 3. E  
 4. C  
 5. A

**Activity 3**  
 Answers may vary

**What I Have Learned**

1. recycle  
 2. useful  
 3. waste management  
 4. non-biodegradable  
 5. recycling

**Assessment**

**A.**  
 1. C  
 2. A  
 3. E  
 4. D  
 5. B

**B.** answers may vary

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