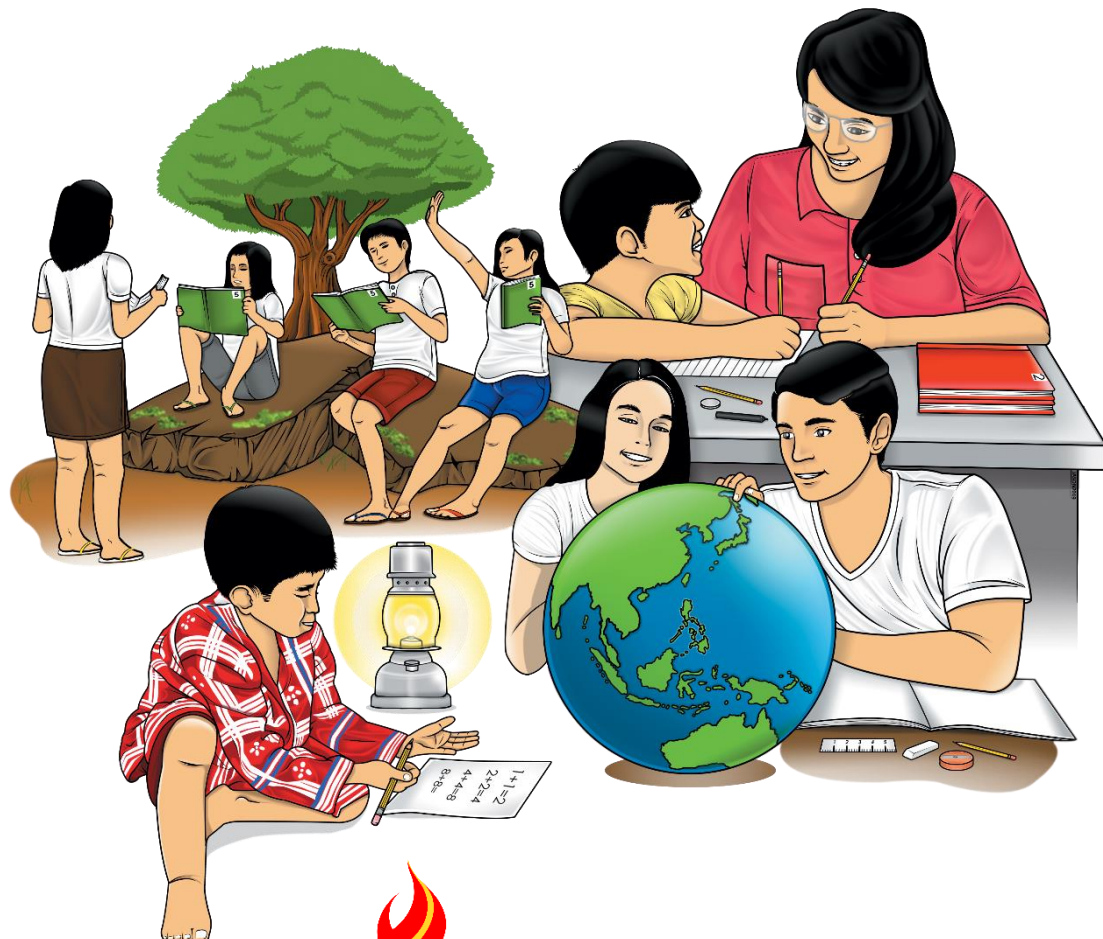


# Arts

## Quarter 4 – Module 5: Creates an Actual 3-D Digitally- Enhanced Product Design for a Paper Bag



## Arts 6

### Alternative Delivery Mode

#### Quarter 4 – Module 5: 3-D Digitally-Enhanced Product Design for a Paper Bag First Edition, 2021

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## **Arts**

**Quarter 4 – Module 5:  
Creates an Actual 3-D Digitally-  
Enhanced Product Design for a  
Paper Bag**

# **Introductory Message**

This Self-Learning Module (SLM) is prepared so that you, our dear learners, can continue your studies and learn while at home. Activities, questions, directions, exercises, and discussions are carefully stated for you to understand each lesson.

Each SLM is composed of different parts. Each part shall guide you step-by-step as you discover and understand the lesson prepared for you.

Pre-tests are provided to measure your prior knowledge on lessons in each SLM. This will tell you if you need to proceed on completing this module or if you need to ask your facilitator or your teacher's assistance for better understanding of the lesson. At the end of each module, you need to answer the post-test to self-check your learning. Answer keys are provided for each activity and test. We trust that you will be honest in using these.

In addition to the material in the main text, Notes to the Teacher are also provided to our facilitators and parents for strategies and reminders on how they can best help you on your home-based learning.

Please use this module with care. Do not put unnecessary marks on any part of this SLM. Use a separate sheet of paper in answering the exercises and tests. And read the instructions carefully before performing each task.

If you have any questions in using this SLM or any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator.

Thank you.



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

A flat object can be transformed into a 3D object using a software called blender. Blender is being developed by people around the world. It is supported by animators, artists, visual effects artists and hobbyist. All of these people are collaborating online to continuously improve blender.

This module was designed and written with you in mind. It is here to help you creates an actual 3-D digitally-enhanced product design for a paper bag. At the end of this module you are expected to:

- a. Be familiar with the free 3D software, Blender-
- b. Follow the steps in using Blender; and
- c. Create an actual 3-D product design for a paper bag.



## ***What I Know***

Before you start studying this module, answer this simple test to find out what you already know about the topic. Choose the letter of the best answer and write the chosen letter on a separate sheet of paper.

1. What is the smallest organizational unit in the user interface?  
a. regions                      b. Tab                      c. Panel                      d. controls
2. What do you call to the professional software used for creating 3D related outputs such as animated films, 3D printed models, and video games, as well as sculpting?  
a. Studio                      b. Blender                      c. Computer                      d. Software
3. What do you call to the options that are grouped to logically organize the interface used to control overlapping sections in the interface?  
a. regions                      b. panel                      c. tab                      d. controls
4. \_\_\_\_\_ has grown and develop since it was discovered in the 19<sup>th</sup> century?  
a. Package design    b. Studio                      c. 3D technology                      d. Blender

5. What part of the Blender interface, which has a specific function for 3D view, properties editor, video sequence editor, and nodes editor?
  - a. Controls
  - b. Region
  - c. Panels
  - d. Editor
6. Which of the following blender interface that are grouped to logically organize the interface and can be vertical or horizontal?
  - a. Tabs
  - b. Panel
  - c. Regions
  - d. Editor
7. These can let you modify a function, an option, or a value. What is it?
  - a. Context buttons
  - b. Controls
  - c. Editor
  - d. Panels
8. It gives access to options and are like tabs, and are often placed on an editor header. What is it?
  - a. Control
  - b. Panels
  - c. Context buttons
  - d. Regions
9. Which of the following is a 3D output that can be produced by the software, Blender?
  - a. Animated film
  - b. 3D printed models
  - c. 3D application and video games
  - d. All of the above
10. What do you call to the blender interface that included in some editors and in this case panels and control are group?
  - a. Panels
  - b. Regions
  - c. Controls
  - d. Tabs

Well, how was it? Do you think you did it well? Compare your answer with those with the answer key. Well, how was it? Do you think you did well? Compare your answers with those in the *Answer Key*.

If all your answers are correct, that's very good! This shows that you already know much about the topics in this module. You may still study the module to review what you already know. Who knows, you might learn a few more new things as well.

If you got a low score, don't feel bad. This means that this module is for you. It will help you understand some important concepts that you can apply in your daily life. If you study this module carefully, you will learn about the answers to all the items in the test and a lot more!

Are you ready?

## Lesson

# 1

# Creates an Actual 3-D Digitally Enhanced Product Design for a Paper Bag

### What is 3D Technology?

3D technology has grown and develop since it was discovered in the 19th century. The new technology is making it possible to include 3D in professional training videos, animated films, computer games, visual effects, computer systems, mobile applications, printers, and more. There are also new art forms developing with this technology to help digital artists, using powerful software tools to create realistic replicas of different things that copy the real world with 3D environment.



### *What's In*

Let us first review your past lesson.

Look at the two pictures below. Which picture shows using new technologies in package design?



**A**



**B**

Which of the pictures show using software for product design? What were the factors that influenced your choice?



### *Notes to the Teacher*

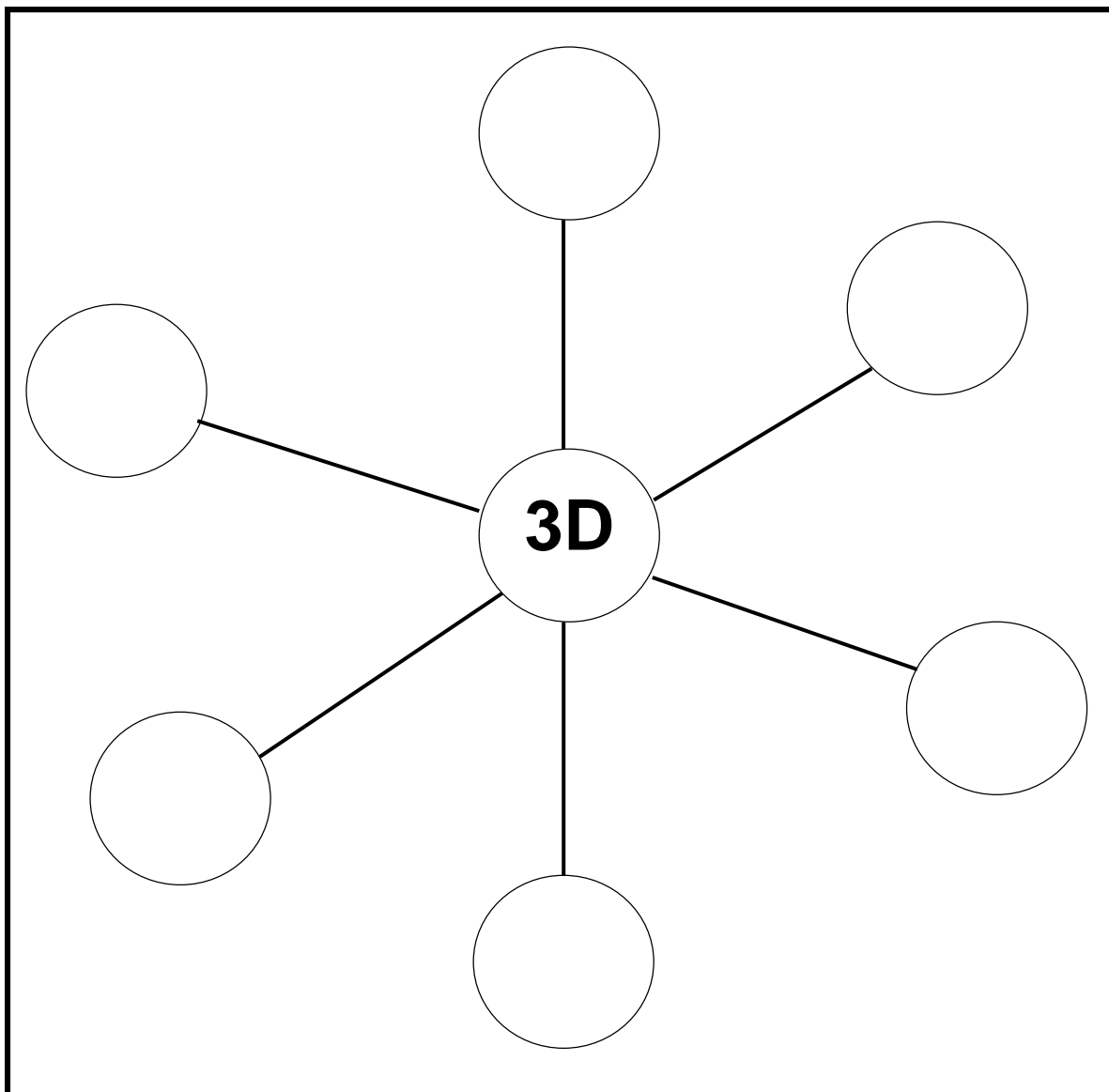
Encourage the pupils to tell something in the picture and ask them which one used the new technologies in product design.



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

Complete the mind map by writing words that you can associate with 3D technology. You can think of examples where you can see 3D in your surroundings or how 3D is used in various industries. Copy this in your notebook and write your answer inside the circle.

What are the applications of 3D in the real world? Write your answers inside the circles.







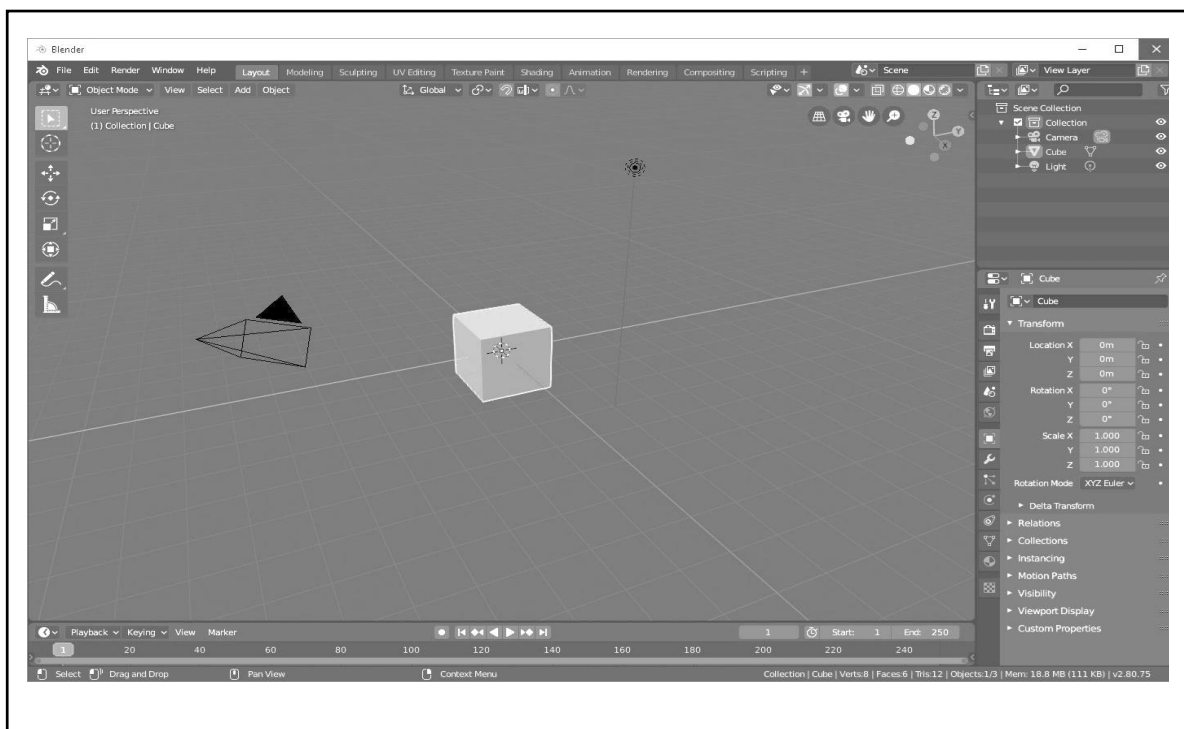
## What is It

### Welcome to the World of 3D!

One of the 3D software you can use to create a three-dimensional art is a blender. Blender can be used to model objects, apply textures, animate, operate on camera tracks, render, and even composite visuals from the start of your project until the end. It is an open-source software that allows you to use blender for any purpose for free.

Blender is a free and open-source 3D computer graphics software. This is a professional software used for creating 3D outputs such as animated film, 3D printed models, 3D application and video games, as well as digital sculpting.

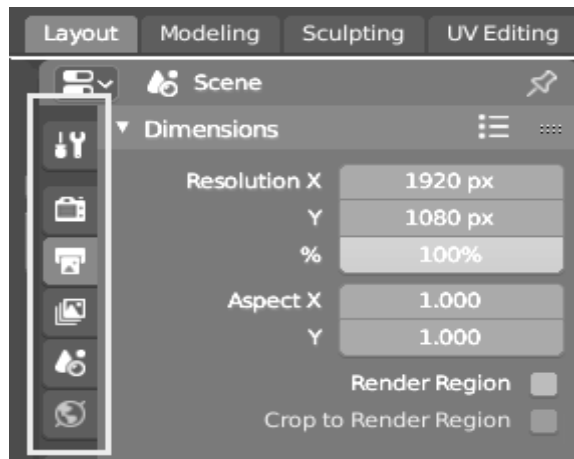
### Parts of Blender User interface



**Editor-** is a part of the screen, which has a specific function (3D view, properties Editors Video Sequence Editor, and nodes Editor).

**Context buttons-**give access to options. These are like tabs and are often placed on an editor header.

**Tabs-** are options that are grouped to logically organize the interface.



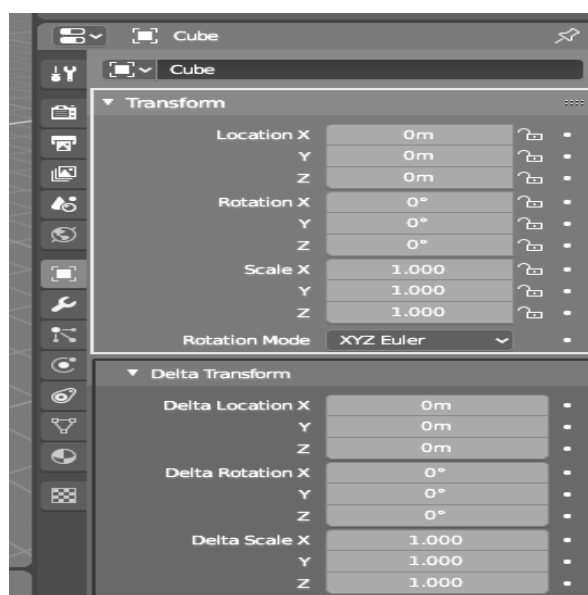
*Top: Horizontal Tab header in the Topbar. Bottom: Vertical Tab shows tab icons in the properties.*

**Tabs** are used to control overlapping sections in the interface. Contents of only one Tab is visible at a time. Tabs are listed in Tab header, which can be vertical or horizontal.

### Switching/Cycling

Vertical tabs can be switched with **Ctrl-Wheel**. From anywhere in the tab. You can also cycle through tabs with **Ctrl-Tab** can **Shift-Ctrl-Tab** or press down LMB and move mouse over tab header icons. (Workspace tabs do not use this keymap.

**Panel** is highlighted in yellow and a subpanel in red. The smallest organizational unit in the user interface is a panel. The panel header shows the title of the panel. It always visible. Some panels also include subpanels.



*Panels in properties*

### Collapsing and Expanding

A panel can either be expanded to show its content or collapsed to hide its contents. An expanded panel is indicated by a down- arrow (▼) in the panel header, while a collapsed panel is shown with a right-arrow (▶).

- A click with the **LMB** on the panel header expands or collapses it.
- Pressing **A** expands/collapses the panel under the mouse pointer.
- A **Ctrl-LMB** click on the header of a specific panel will collapse all other panels and make this the only expanded one.
- A **Ctrl-LMB** click on the header of a specific panel that contains subpanels will expand/ collapse all subpanels.
- Dragging with **LMB** over the headers will expand or collapse many at once.

### Position

You can change the position of a **LMB** panel within its region by clicking and dragging it with the **LMB** on the grip widget (:::) located in on the right side of the panel header.

### Pinning

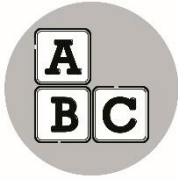
Sometimes it is desirable to view panels from different tabs at the same time. This has been solved by making panels pinnable. A pinned panel remains visible regardless of which tab has been selected. You can pin a panel by clicking on the pin icon in its header. Panels that do not have pin icon can also be pinned by **RMB** and selecting Pin, or you use **Shift-LMB** on the panel.

### Zoom

The zoom factor of a whole region with panels can be changed by **Ctrl-MMB** clicking and moving the mouse anywhere within that region or use the **NumpadPlus** and **NumpadMinus** to zoom in and out the contents. Pressing the **Home** (Show All) will reset the zooming at the screen/panel focused by the mouse printer.

**Regions-** are included in some editors. In that case, panels and controls are grouped there. For workspace optimization, it is possible to temporarily hide regions with the hotkeys and for the toolbar the properties Region respectively.

**Controls-** are contained in the panels. These can let you modify a function, an option, or a value.



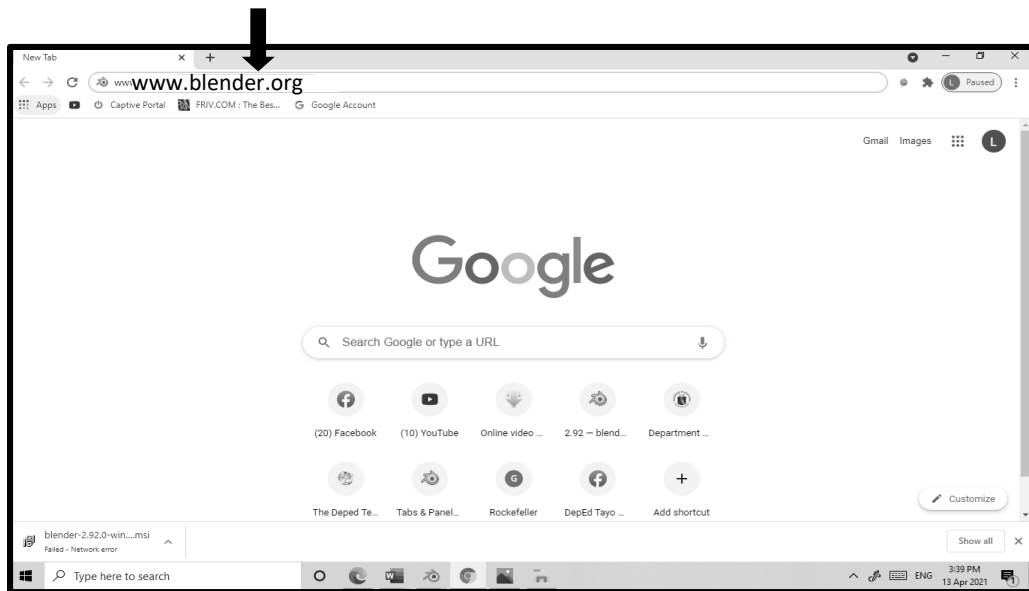
## What's More

### Activity 1.1

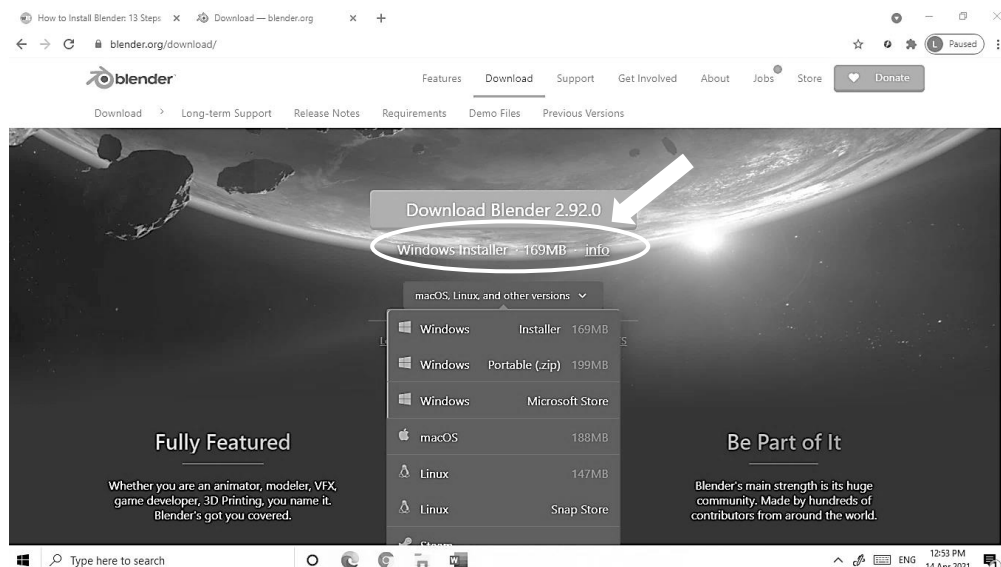
You must remember that learning Blender, or any other software, is not easy at first. However, you must practice and improve so it becomes worth at the end.

For you to explore and experience this software. Try to follow the following steps on how to download and install Blender.

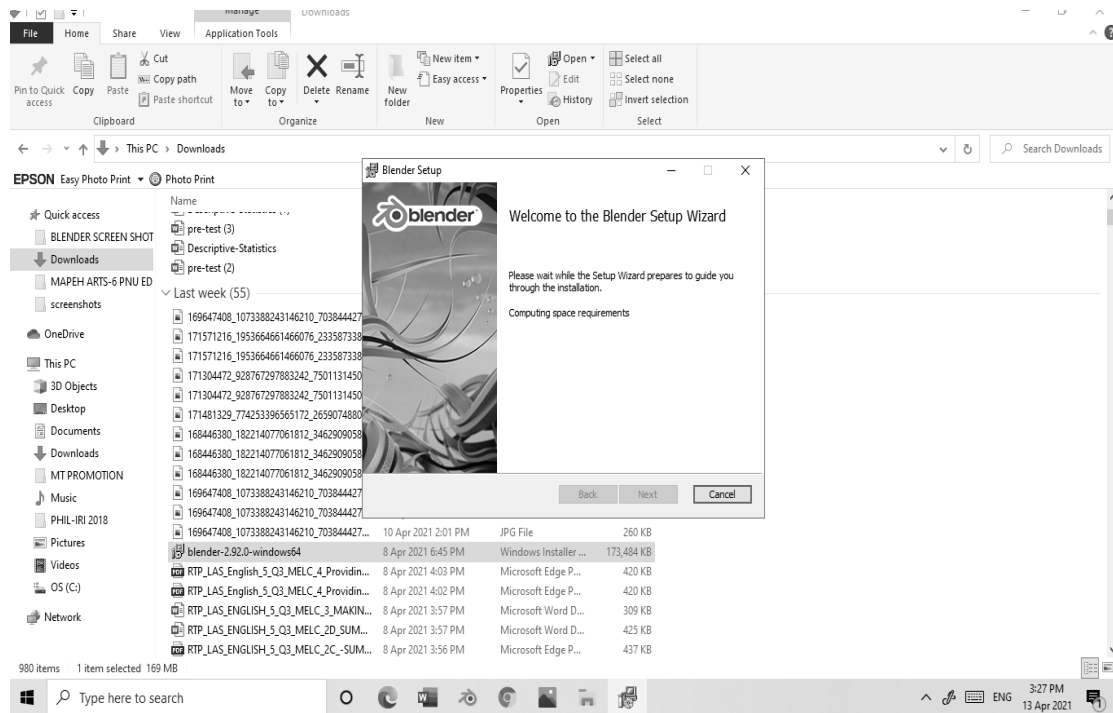
Step 1: Visit the Blender Website.



Step 2: Click on the link to access the download page. Also, select the operating system to install the program.



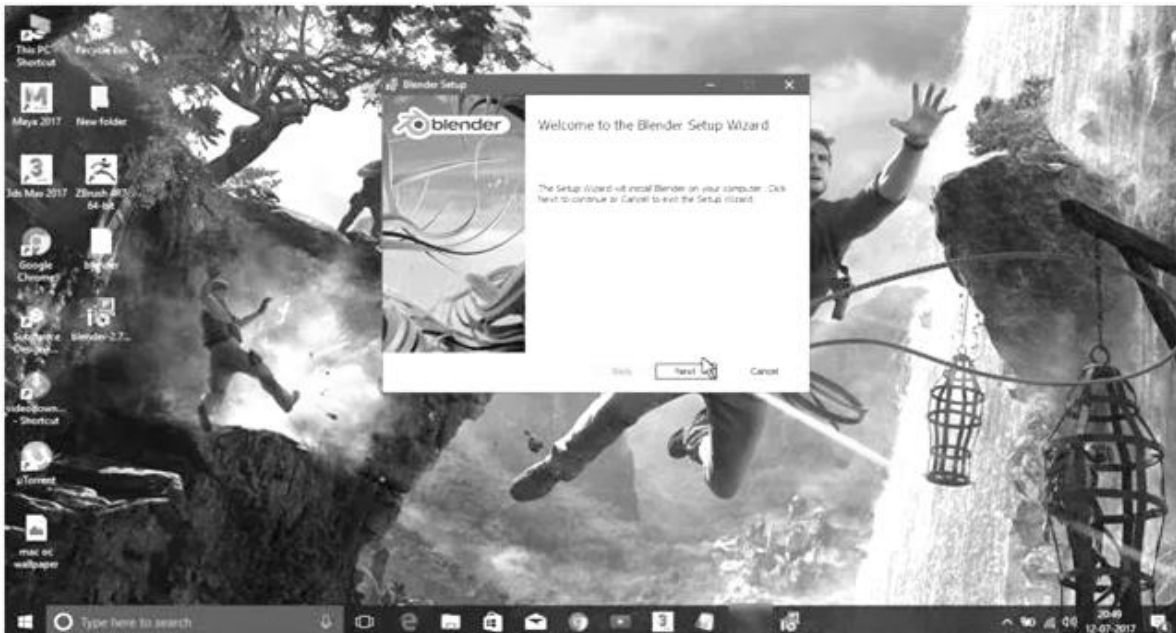
Step 3: Now, Run the download installer which will probably be available in the download folder.



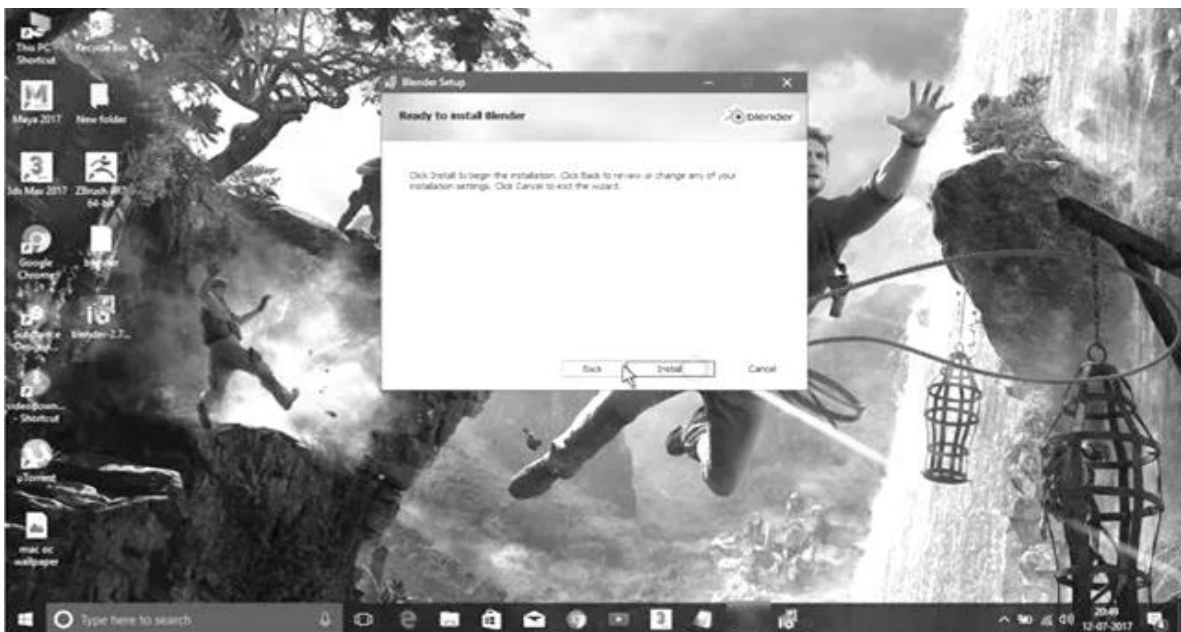
Step 4: Now, click on the Next Button to initiate the installation process.



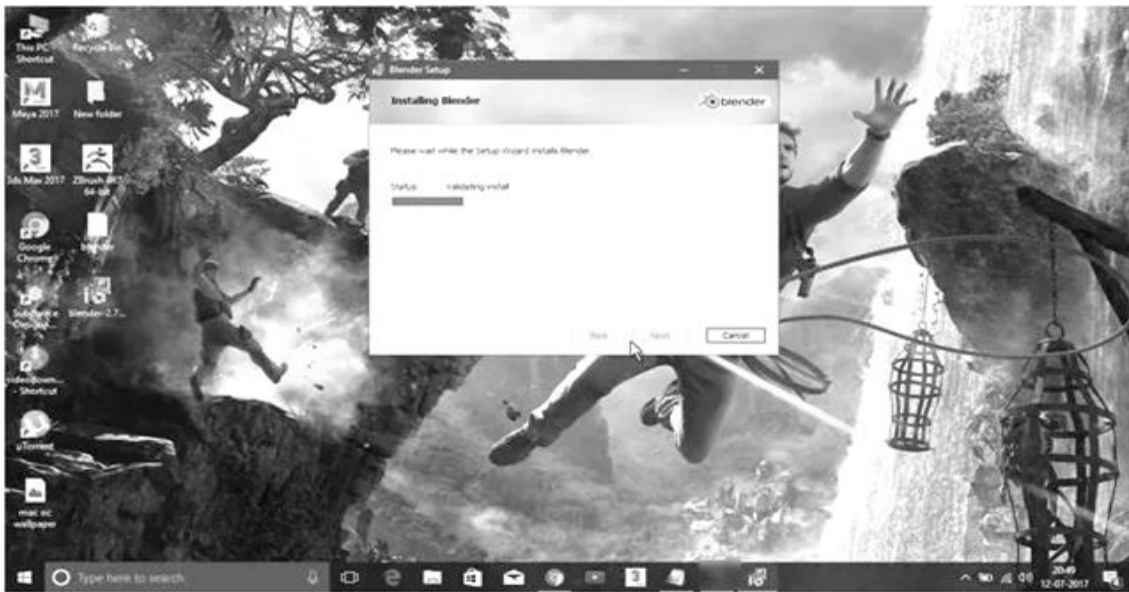
Step 5: Click on the Next Button, when asked to move ahead in the process.



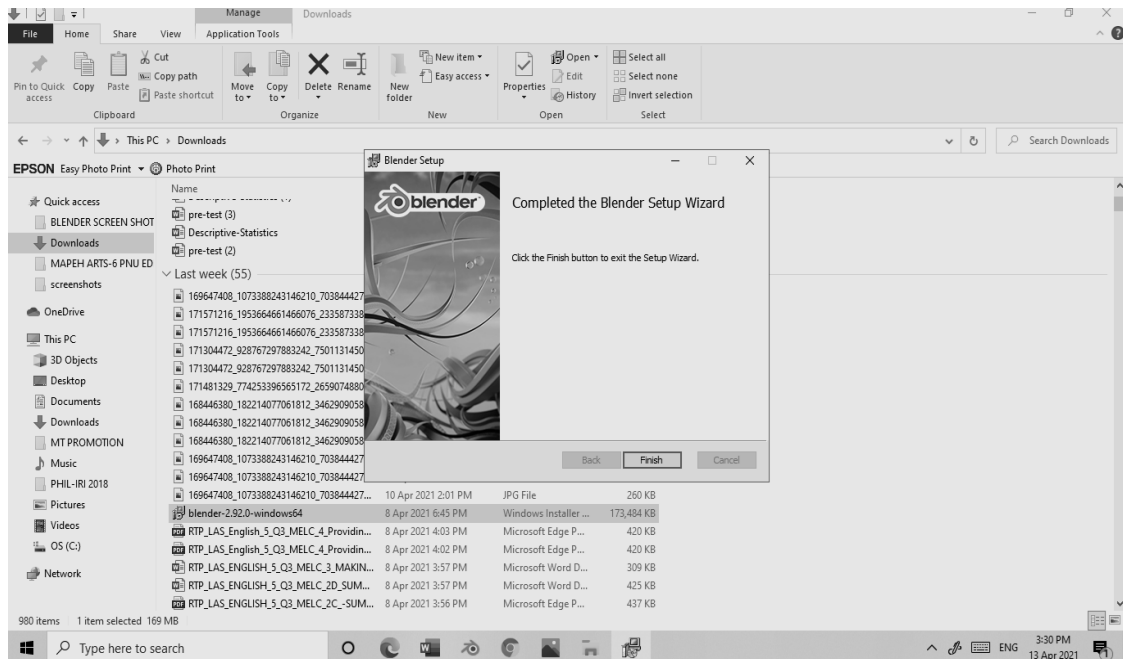
Step 6: In this step, the user can change the default location of the program. Click Install to Move ahead.



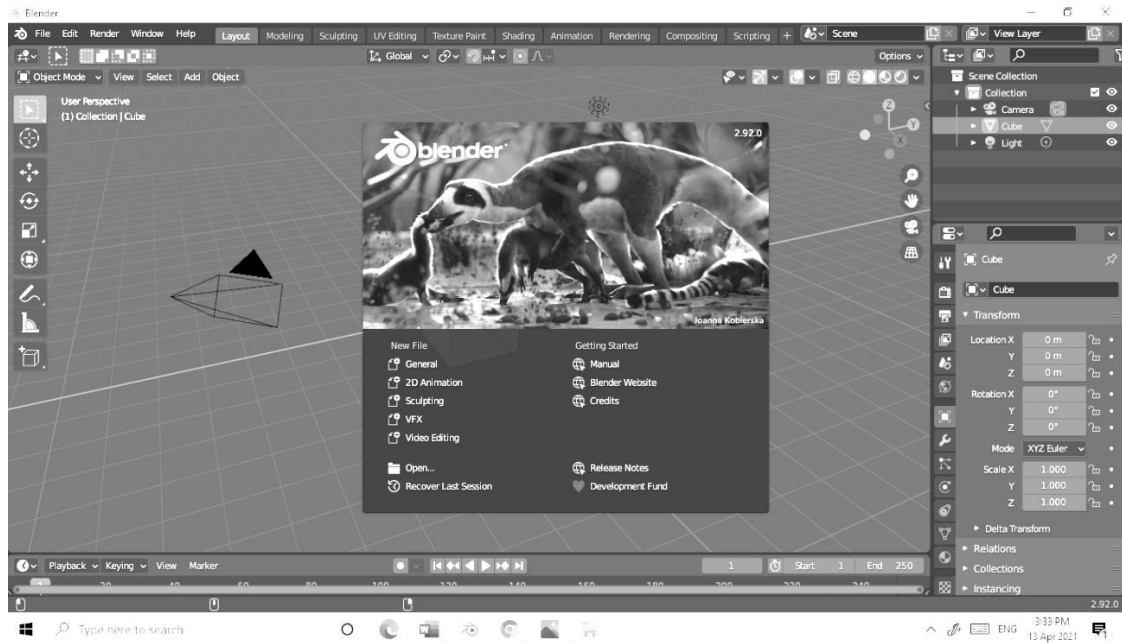
Step 7: Wait for the Program to install Blender.



Step 8: Click on Finish and Complete the installation Blender process.



Step 9: After installing the program, the Blender window will look like this. The interface of Blender is the same across all the operating systems.



Step 10: The software starts with the default screen and it is divided into five main areas that contain Editors in General. The interface of Blender has.

- Giant and wide 3D View
- There is a Timeline Toolbar at the bottom of the UI
- In the Bottom Right, a Properties Editor is situated.
- At the Top Right, Outliner is given.
- At the top of the UI, an Info Editor is seen.

Step 11: The User Interface of the Program is designed in such a way that helps the user in understanding each tool and feature easily.

Step 12: The user Interface is created very clearly and neatly that allows the user to view and work on all important options and tools at one glint without moving or pushing the editors in the UI.

Step 13: The users can access the tools easily and effectively. They need not spend time on selecting between the various tools. Blender also uses a lot of keyboard shortcuts to accelerate the work. These keyboard shortcuts can be modified and updated in the Keymap Editor.



## Let's have more fun in Blender!

Before doing the activity below, let's take a look on the words to ponder.

### Words to Ponder!

**Mesh-** is a collection of vertices, edges, and faces that describe the shape of a 3D object: A vertex is a single point. An edge is a straight-line segment connecting two vertices. A face is a flat surface enclosed by edges.

**Orbiting-** is a rough equivalent of rotating the 3D world around a fixed point in space. This is the most basic way of navigating this space. In order to orbit in Blender, middle-click anywhere in the occasionally, you have the need to keep your orientation to the world, but you will want to move it around so that you can see a different part of the scene from the same angle.

**Panning-** the movement in blender by holding Shift while middle-clicking and dragging your mouse cursor in the 3DView. Now when you drag your mouse around, the world shifts without changing the angle that you're viewing from.

**Zooming-** the third way of navigating 3D space when you want to get closer to an object in your scene. In Blender, you can zoom in two ways. The easiest method is by using your mouse's scroll wheel. By default, scrolling forward zooms in and scrolling back zooms out.

### Let's try this!

Follow the instructions below to practice and learn more on creating 3-D.

1. Open Blender and delete the default objects (Cube, Lamp, and the Camera in your View Panel).
2. Click the Create tab from the Tools shelf or you may press Shift + A, choose Mesh then select the object that you need to insert.
3. Before inserting an object, make sure the cursor is positioned to where you want it in the grid.
4. Insert the objects one by one. Start with circle, Plane, Cone, Cube, UV Sphere, Cylinder, ICO Sphere, Torus, and Monkey.
5. Always check the objects in different views.
6. Press the middle button of your mouse to rotate the view panel in 360.
7. Use the scroll of your mouse to zoom in and out.
8. Press Shift + Middle mouse button to pan.



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

In this lesson I have learned that...

- 3D technology has grown and develop since it was discovered in the 19<sup>th</sup> century.
- The new technology is making it possible to include 3D in professional training videos, animated films, computer games, visual effects, computer systems, mobile applications, printers, and more.
- There are also new art forms developing with this technology to help digital artists, using powerful software tools to create realistic replicas of different things that copy the real world with 3D environment.
- One of the 3D software you can use to create a three-dimensional art is a blender.
- Blender can be used to model objects, apply textures, animate, operate on camera tracks, render, and even composite visuals from the start of your project until the end.
- Blender is a free and open-source 3D computer graphics software.

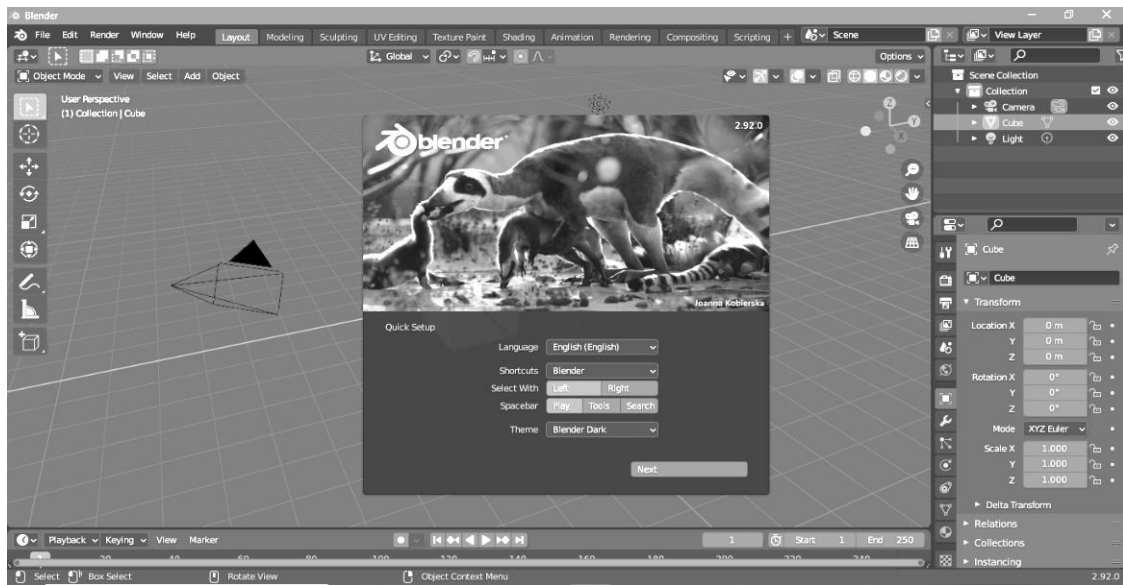


## What I Can Do

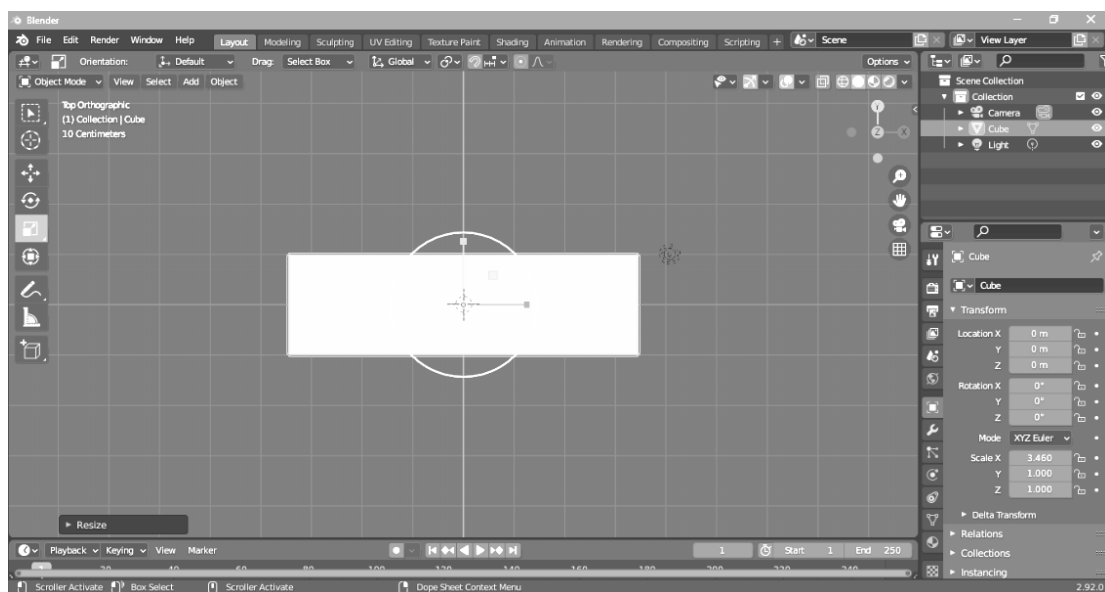
It is time to apply what you have learned! Let us try to create a paper bag using a Blender.

Follow the steps below.

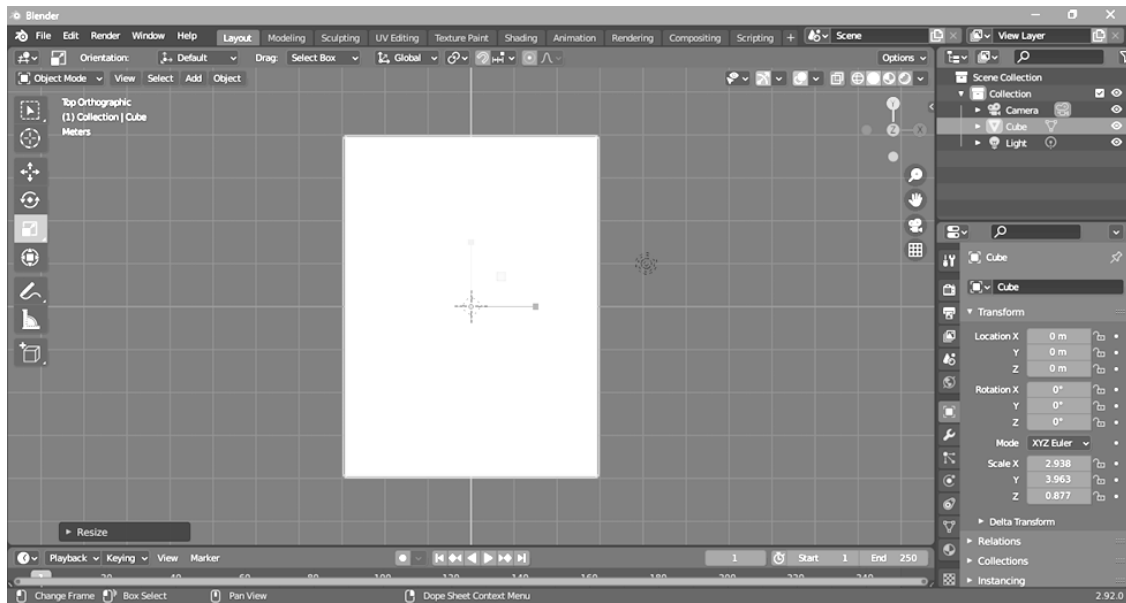
1. Open Blender from your Computer. Press Esc.



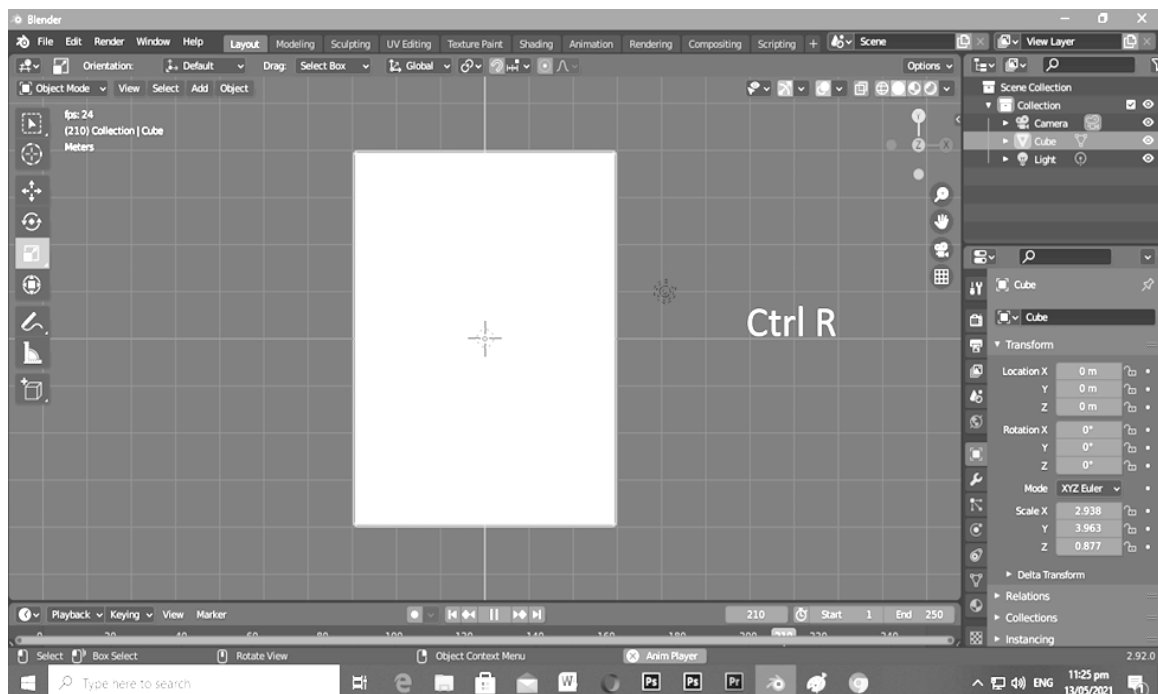
2. Click the middle mouse button to rotate the view.



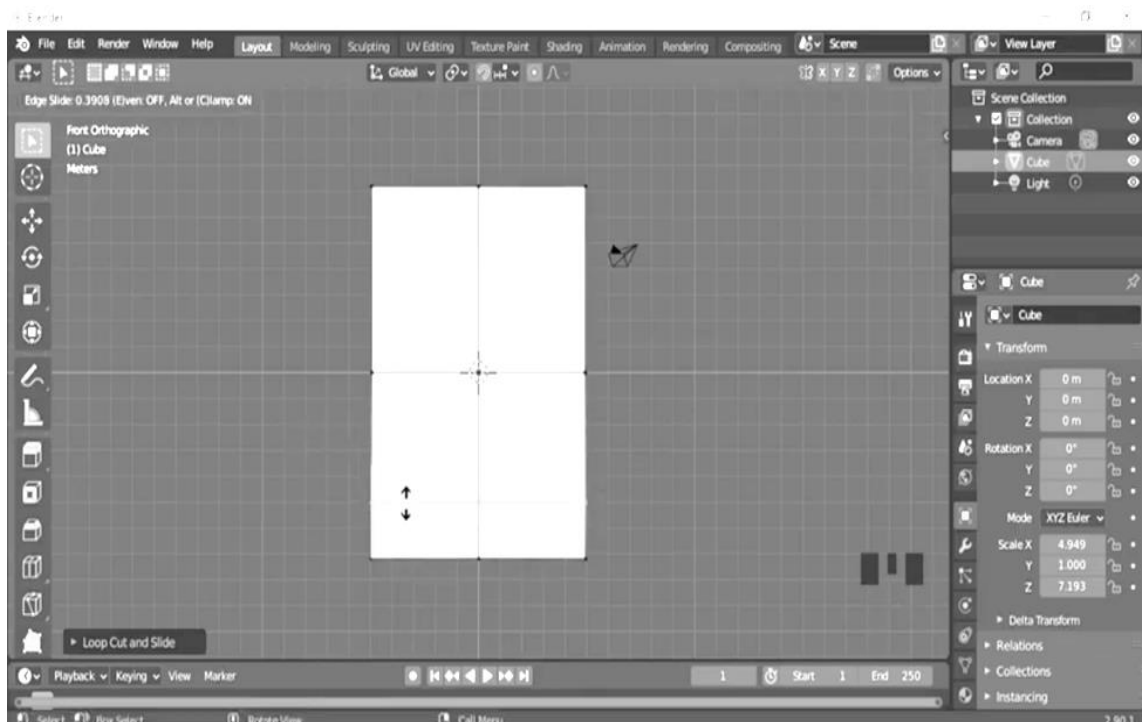
3. Shift + middle mouse button to pan the view.



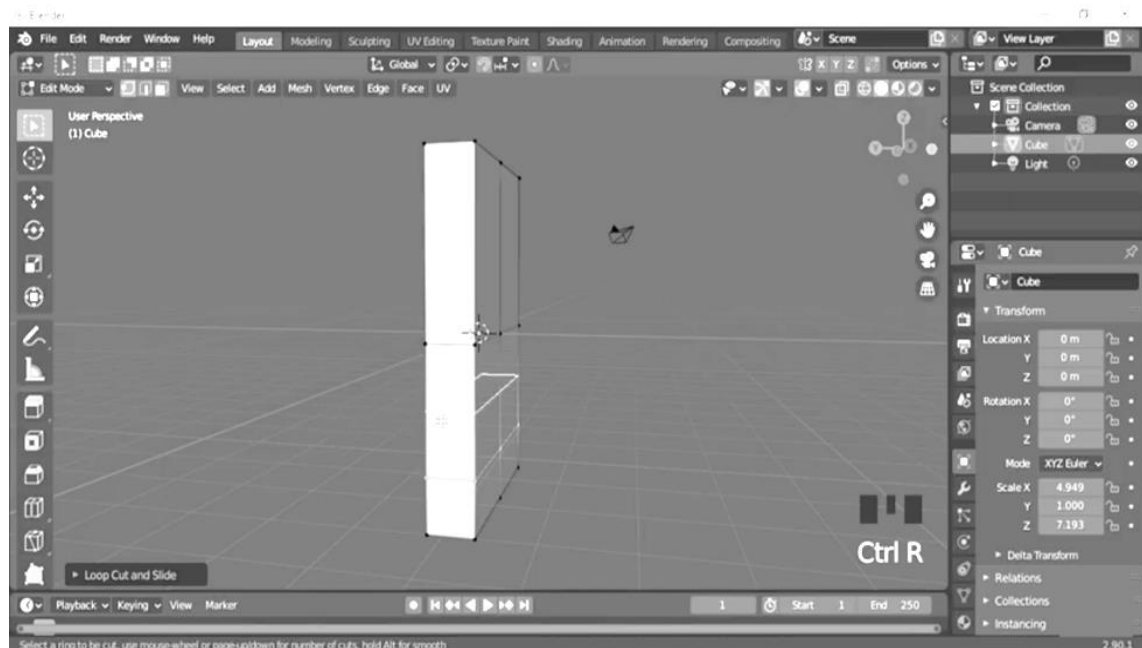
4. In the left side of your blender the tools and scroll down to the exclude category



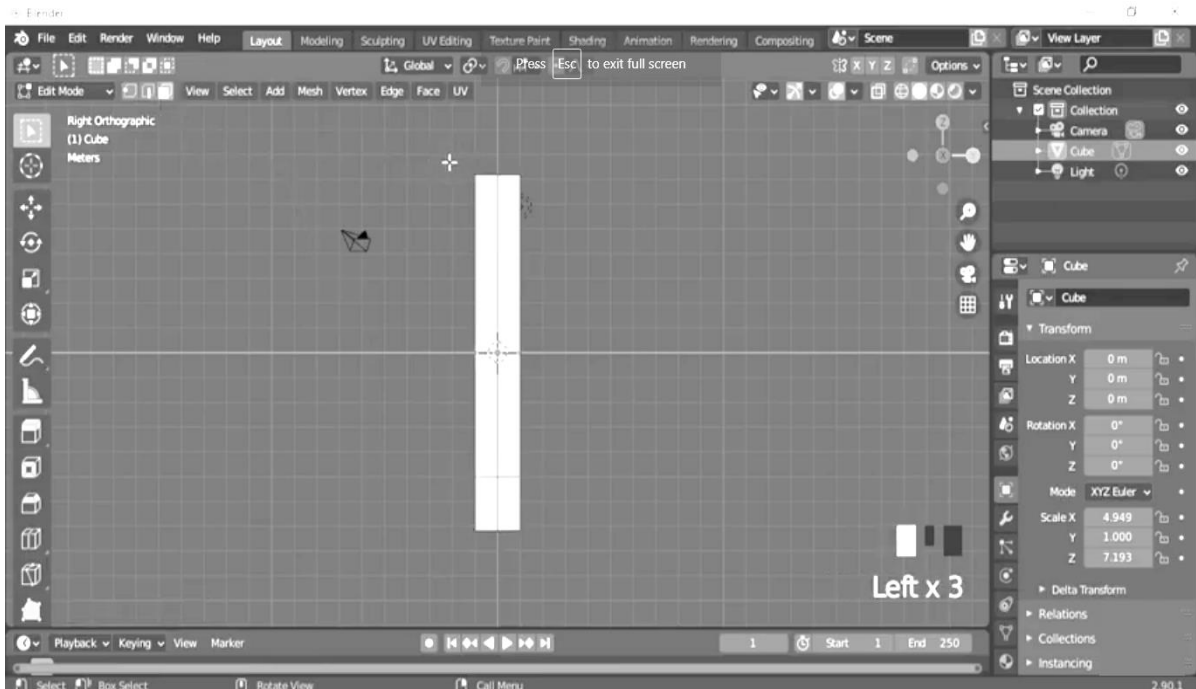
5. To resize the width of the bag, press S (Scale).



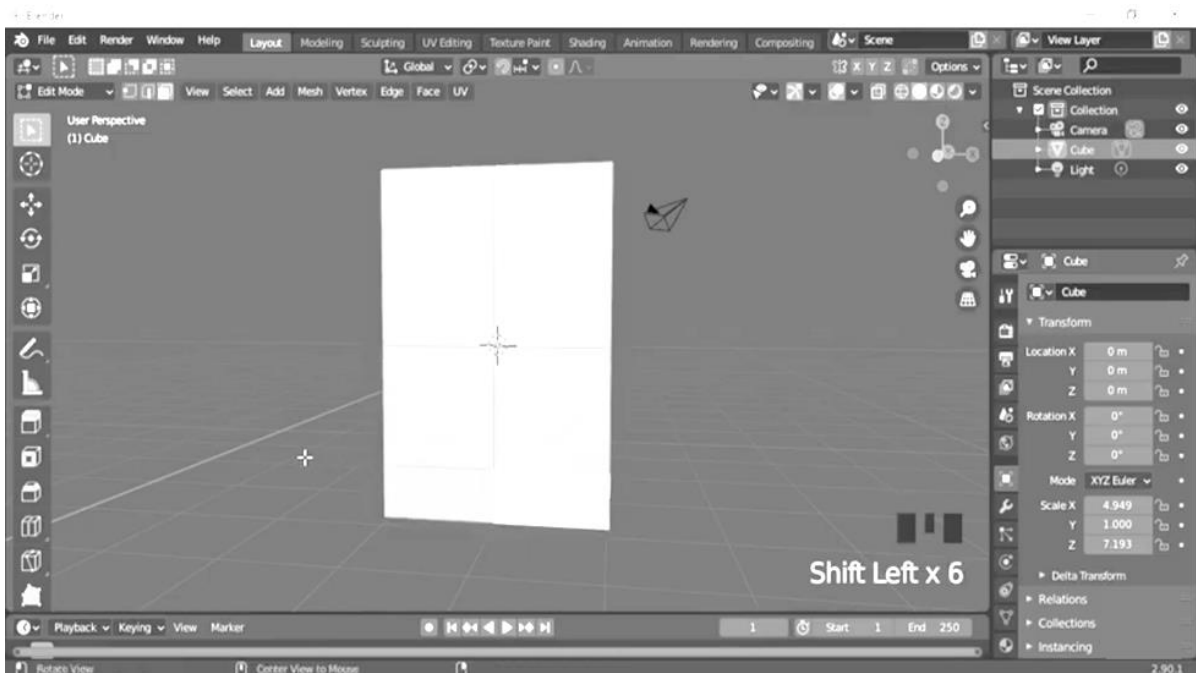
6. Then click Y (to lock the Y-axis), then pull outward. To pause, press the left-mouse button.



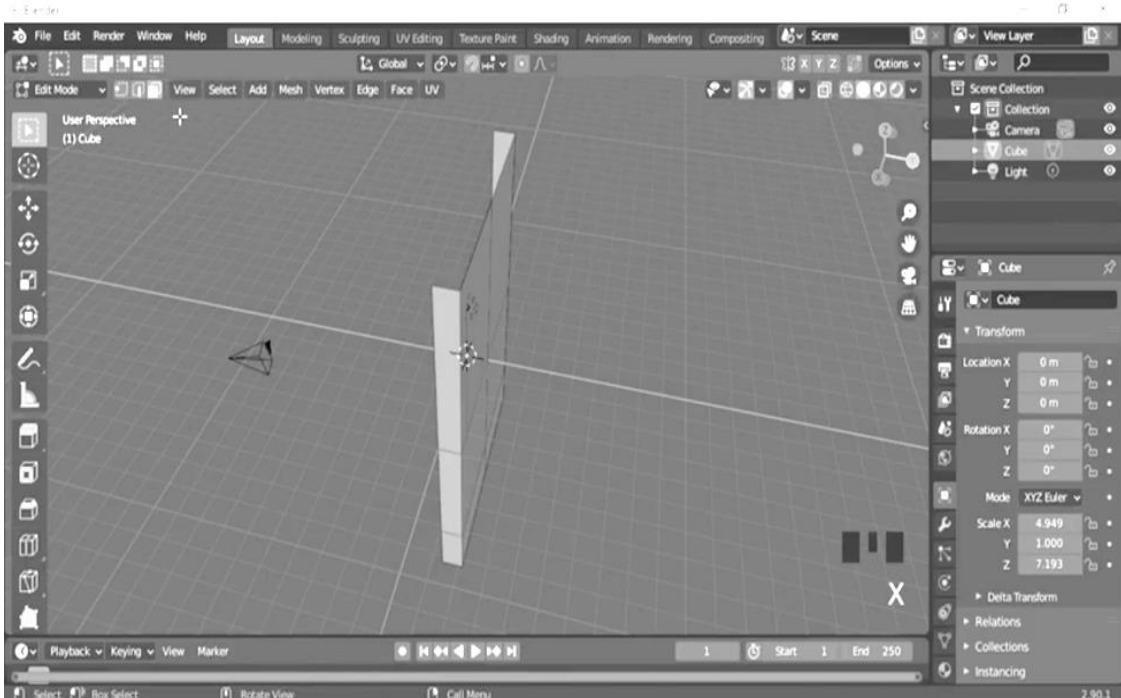
7. Click (Shift Left x 3)



8. Then Shift Left x 6 to see the whole layout.



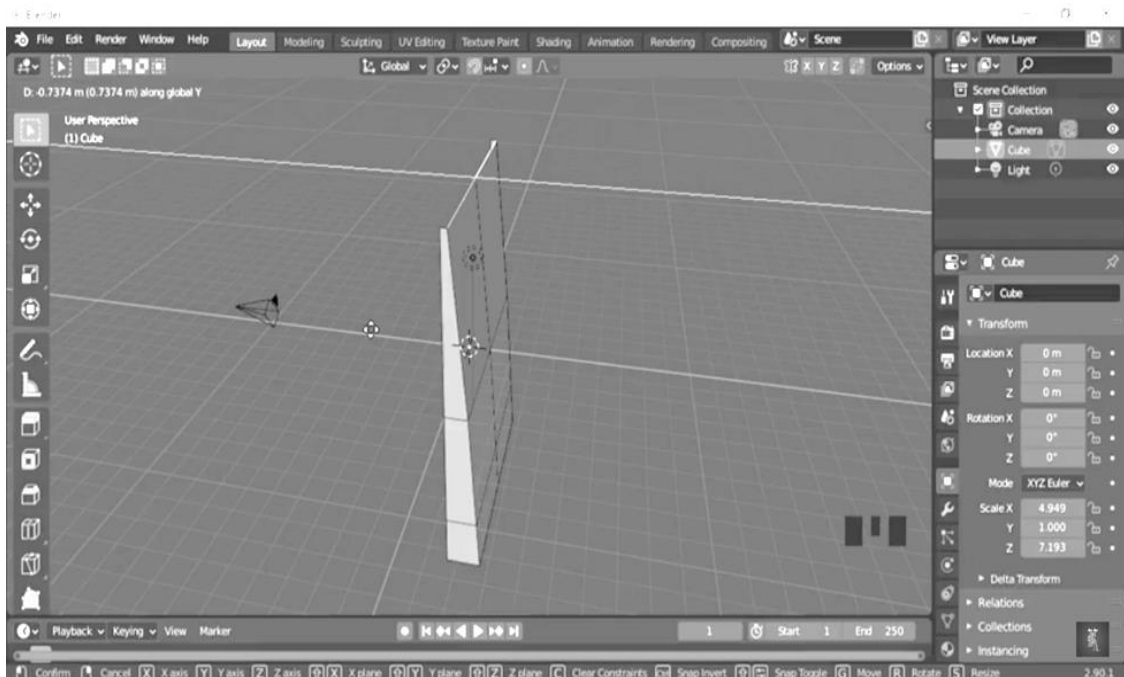
9. Select the right bottom vertices with press B (Select Bounding Box). To make the bottom of the bag, pull the X-axis outward (Red arrow). Carry on with the left bottom vertices in the same way. Toggle between selecting all and unselecting the vertices by pressing A.



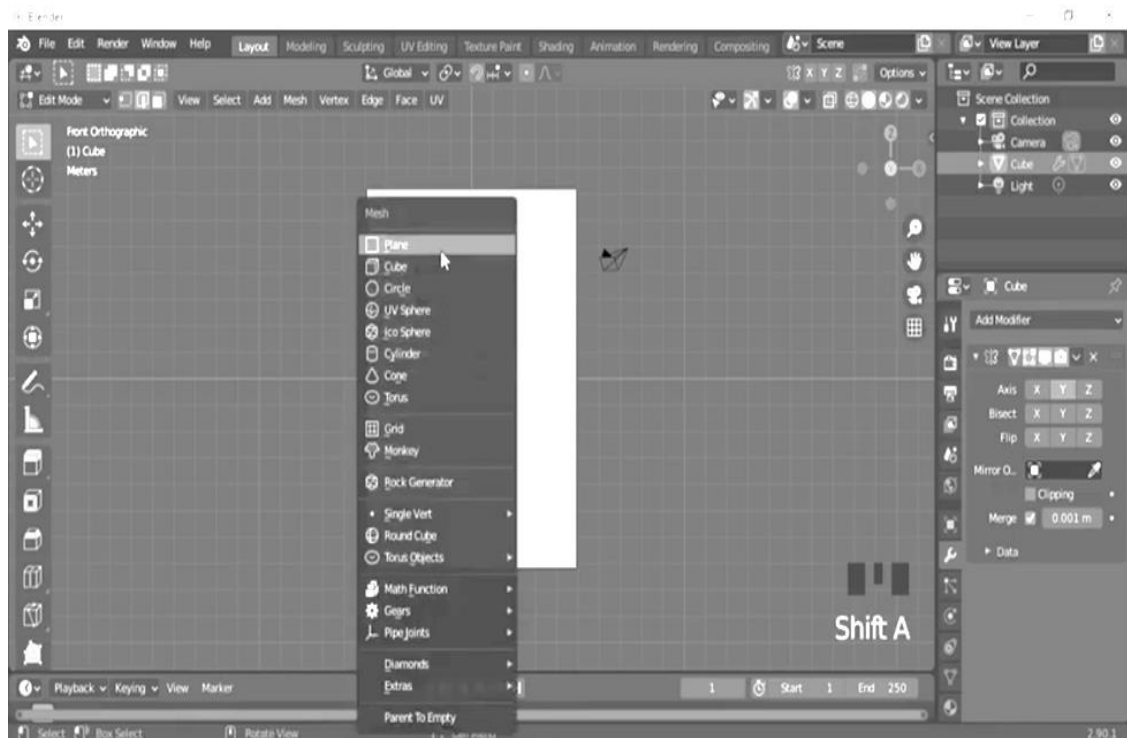
10. Then go to your left and click the icon of setting and go to generate and click the mirror.



11. Then at the left side of your tool click the user perspective to drag and to see the middle of your paper bag out-put.

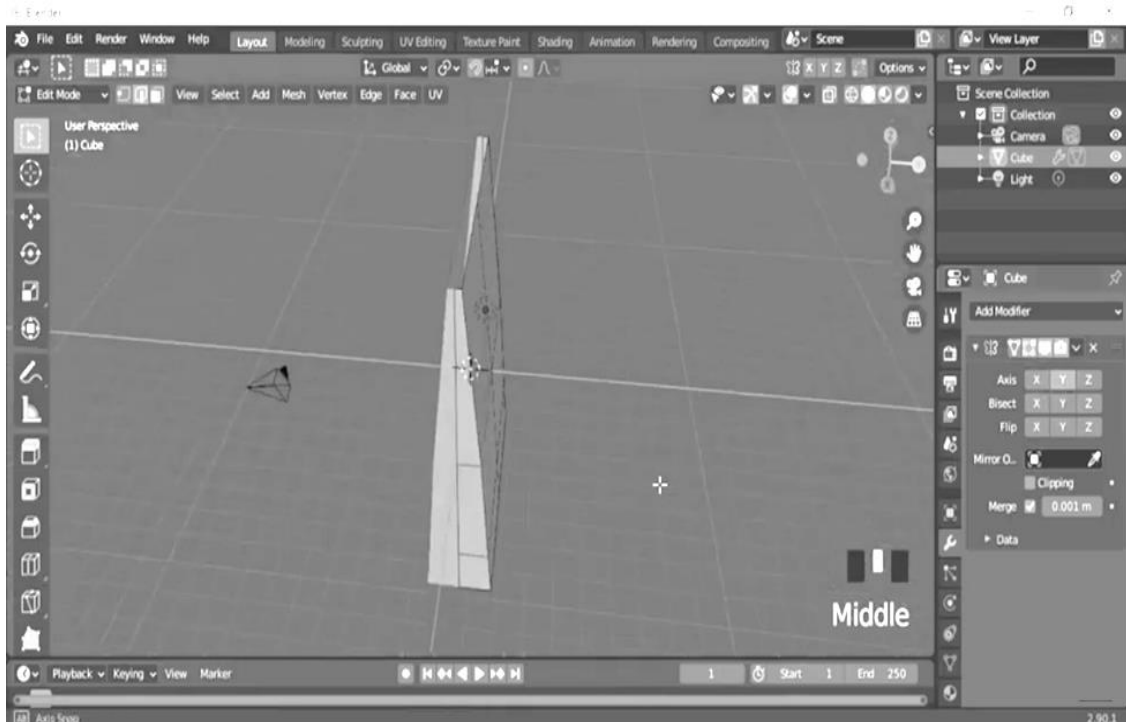


12. Then drag your arrow at the center of you out-pit and click right and click plane, to make the handbag your paper bag.

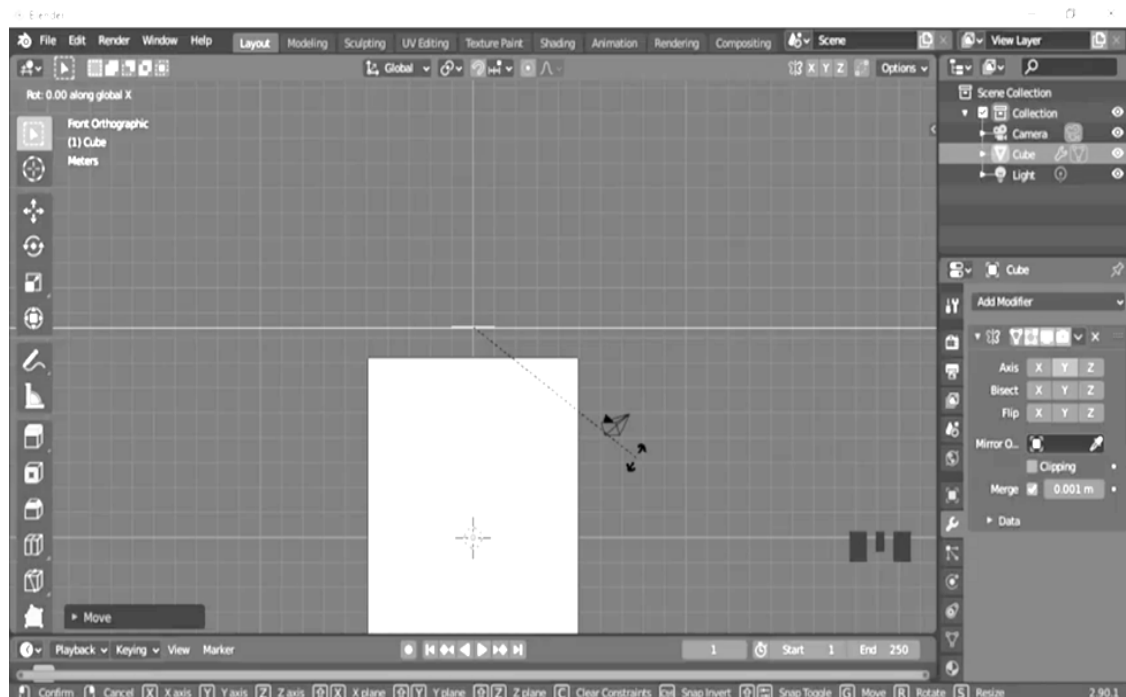




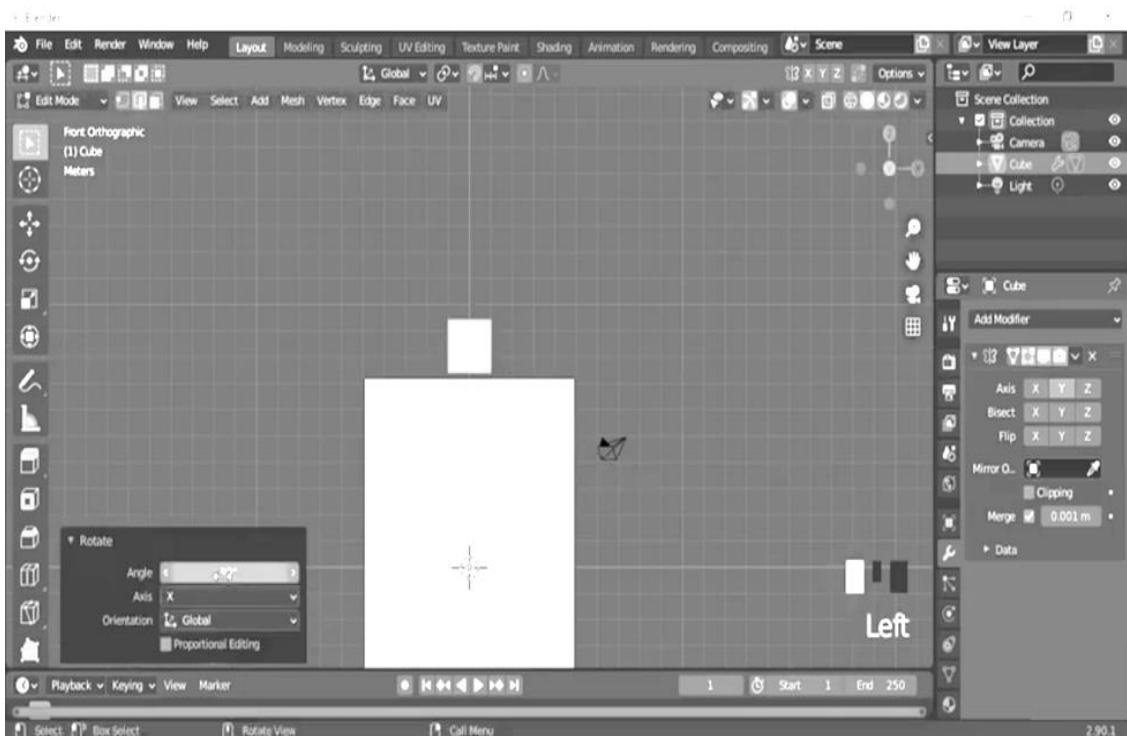
13. Select the right bottom vertices with press B (Select Bounding Box). To make the bottom of the bag, pull the X-axis outward (Red arrow). Carry on with the left bottom vertices in the same way. Toggle between selecting all and unselecting the vertices by pressing A.



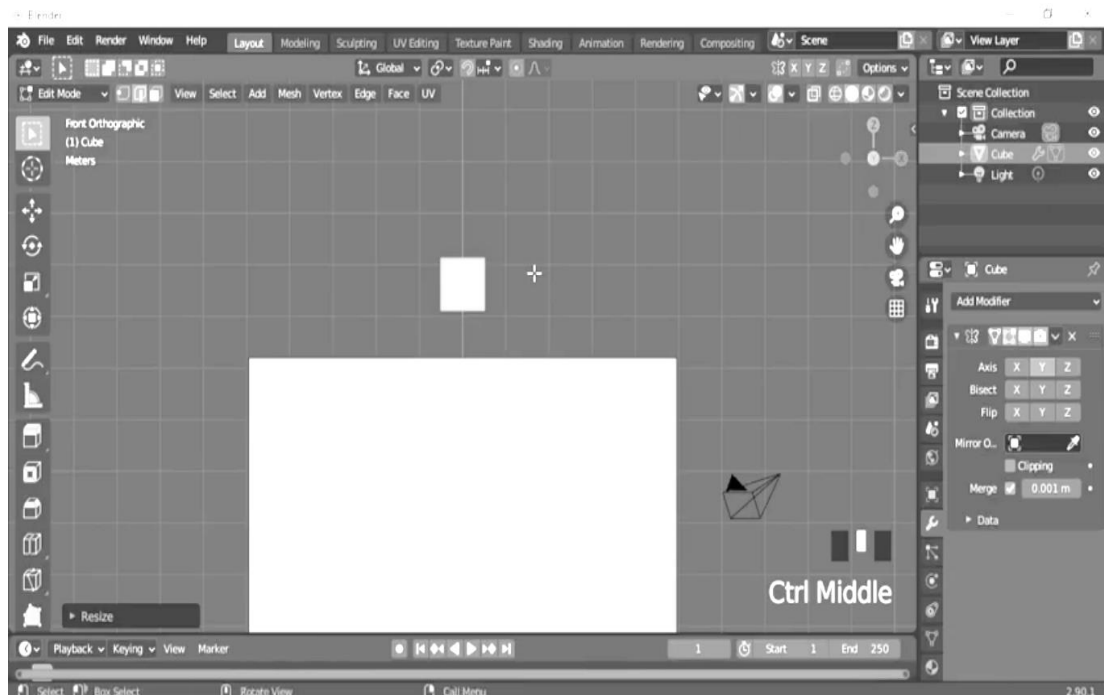
14. At the left side of your tool click the user perspective to drag and to see the middle of your paper bag out-put. Then go to the left side of your tool and click again the user perspective to see your Font Orthographic (1) Cube Meters.



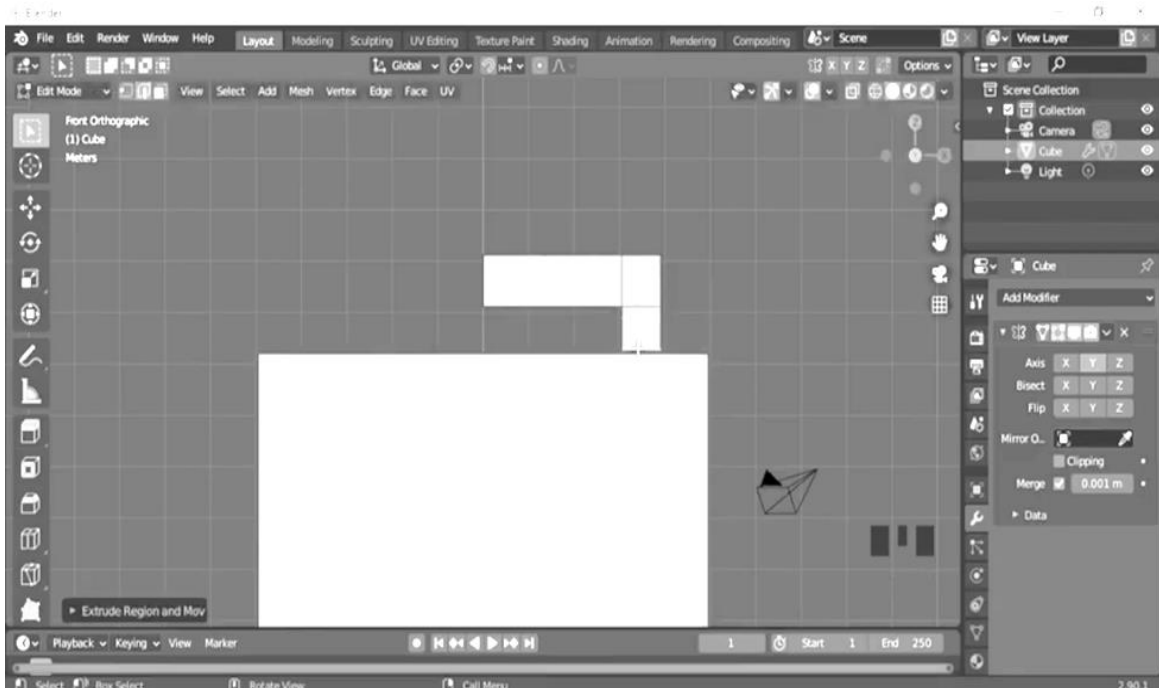
15. At the left side of your tool, you will see the icon with the name (move) click that and click rotate and then drag to left with angle 92 degrees.



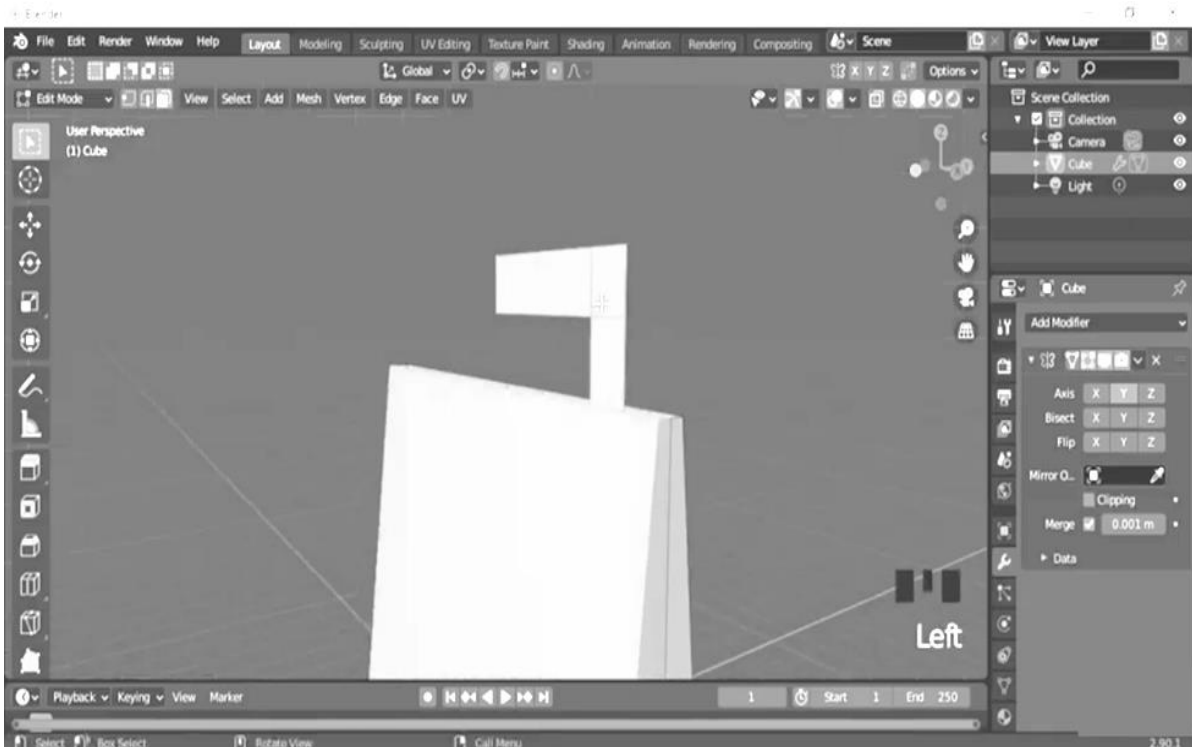
16. Ctrl Middle to drag to create the handbag.



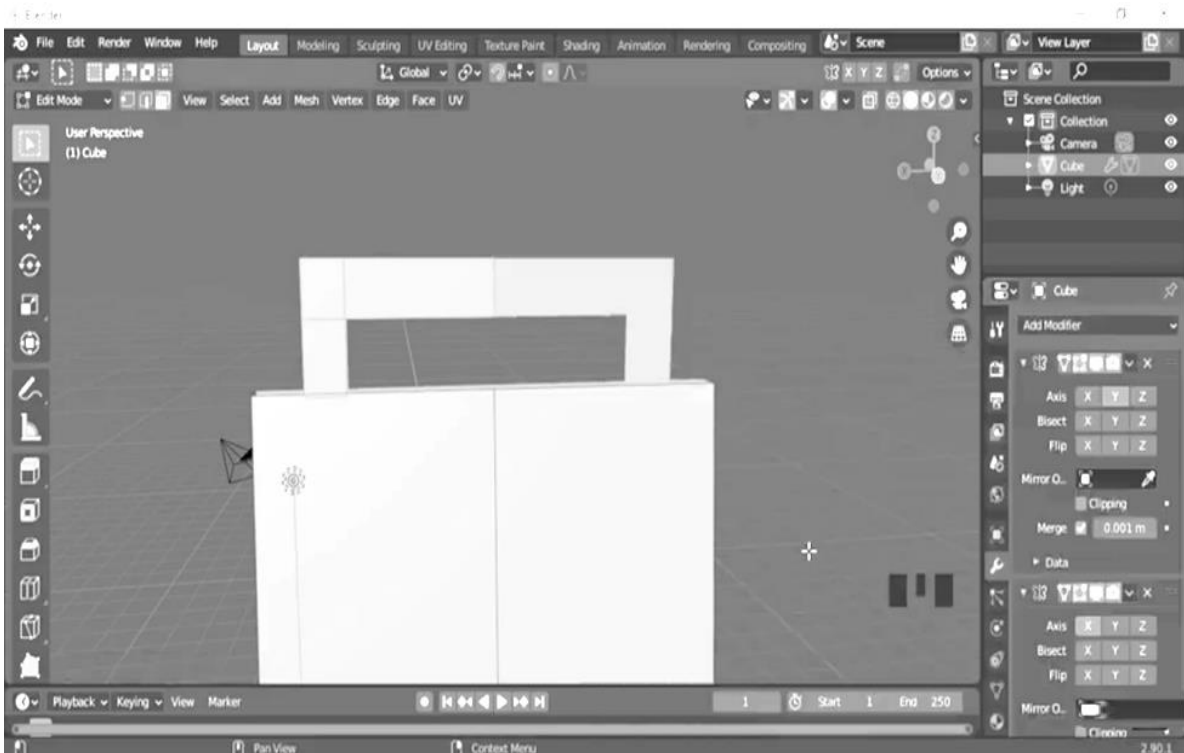
17. Drag down the arrow to complete the handbag.



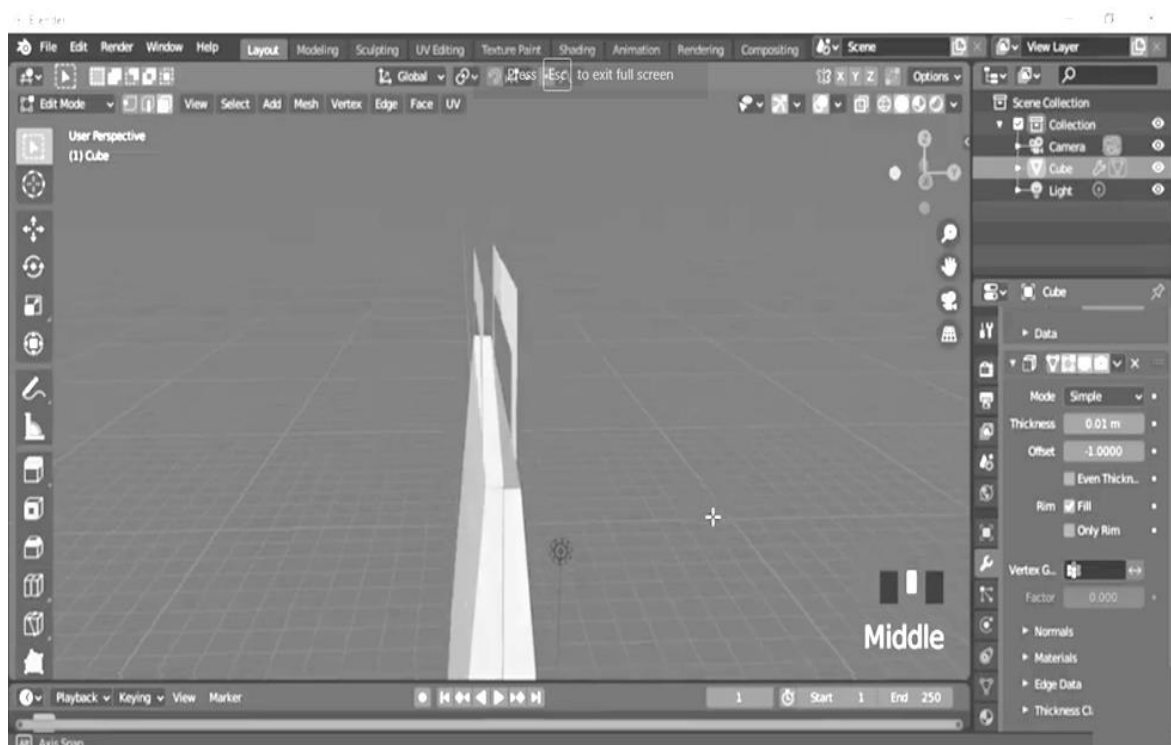
18. Click Ctrl G to see the whole out-put of the half handbag.



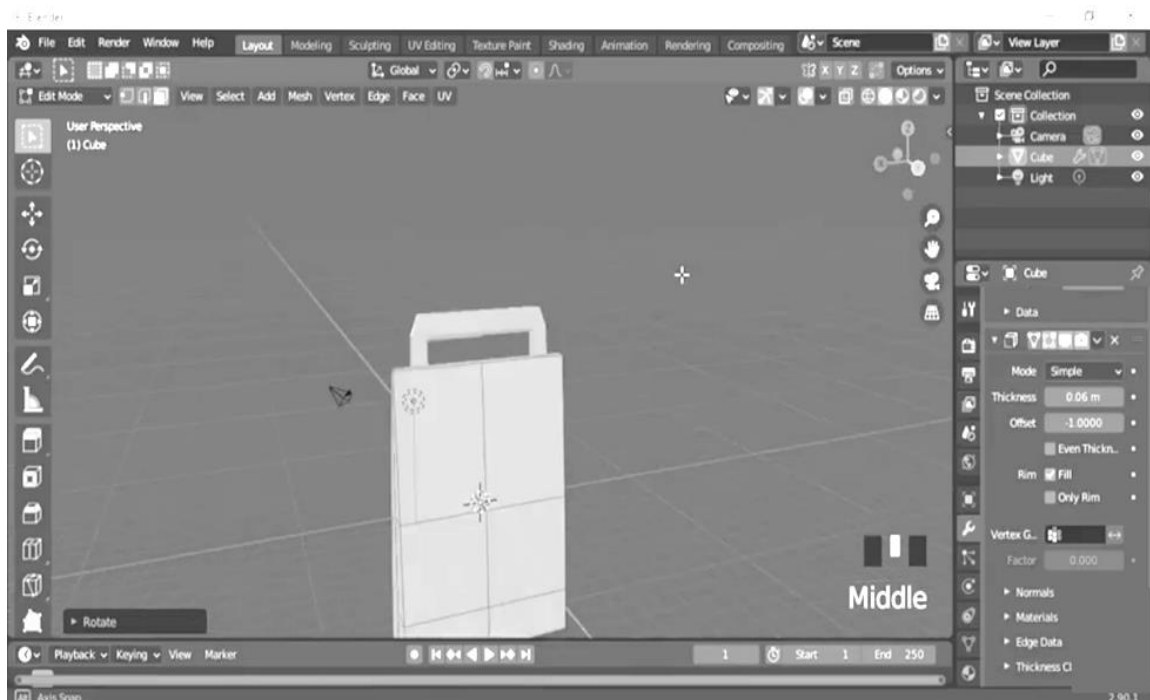
19. The same step. Follow the step 17 and step 20.



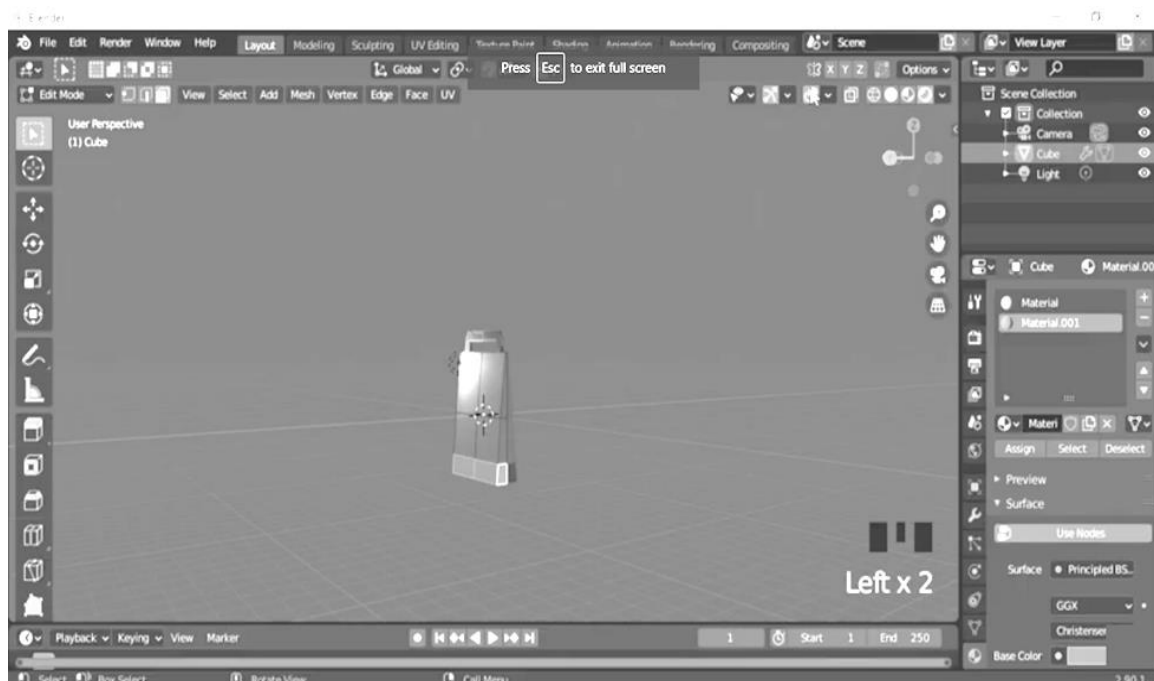
20. Change the view to Back and repeat the process. In the Front view, hold shift and right-click on the vertices in the center of the bag (except the bottom middle).



21. Then click Ctrl M (Middle) to rotate and see the whole output.



22. Click color to apply the color you want.



If you want to learn more on how to create a paper bag using the blender. Go to this link. [https://www.youtube.com/watch?v=KbcyFO\\_GZBE&t=67s](https://www.youtube.com/watch?v=KbcyFO_GZBE&t=67s)



## Assessment

This assessment allows you to create an actual 3-D digitally enhanced product design for a paper bag. You will be given 10 points. Five (5) points will be rated 5 from the 3D Paper bag/ product packaging design and another 5 points from the multiple choice. Write your answer on a separate sheet of paper for the multiple choice.

### A. 3D Paper bag/Product packaging Design

In this activity, you have to help the following companies in designing packaging materials/paper bag (whichever is applicable) for the products.

Use Blender to create 3D packaging models of these products.

Company	Product	Appropriate 3D Design
Mictasharlo's Jewelry Shop Inc.	Engagement Ring	<input type="checkbox"/> Paper bag <input type="checkbox"/> Packaging material
LG's Bakeshop	Delightful Cupcakes	<input type="checkbox"/> Paper bag <input type="checkbox"/> Packaging Material

### B. Multiple Choice: Choose the letter of the correct answer.

- What is the smallest organizational unit in the user interface?  
 a. regions      b. Tab      c. Panel      d. controls
- What do you call to the professional software used for creating 3D related outputs such as animated films, 3D printed models, 3D application and video games, as well as sculpting?  
 a. Studio      b. Blender      c. Computer      d. Software
- Which of the following blender interface that are grouped to logically organize the interface and can be vertical or horizontal?  
 a. Regions      b. Panel      c. Tabs      d. Editor
- Which of the following is a 3D output that can be produced by the software, Blender?  
 a. Animated film      c. 3D application and video games  
 b. 3D printed models      d. All of the above
- What part of the Blender interface, which has a specific function for 3D view, properties editor, video sequence editor, and nodes editor?  
 b. Controls      b. Editor      c. Panels      d. Region



## ***Additional Activities***

### **The Ten Cube challenge**

Read and follow the instructions carefully.

1. You can create any model but you can only use a maximum of ten cube.
2. You may stretch the cubes in rectangular directions only.
3. Do not pull them out of shape. For example, if a cube has been rotated, be sure to scale it in the local direction.
4. Save your work as SURNAME\_Section.
5. Click the Camera icon from the Header Strip. This action will generate photo that you can save (press F3). Repeat this process to get photos of different angles.

**RUBRIC:** 3D Paper bag/Product packaging Design

<b>CRITERIA</b>	<b>SCORE</b>	<b>COMMENTS</b>
Each 3D paper bag design was created using Blender		
Each design shows creativity and technical knowhow		
Each design is appropriate for the company and product it is created for.		
The activity was completed and presented on time.		
<b>TOTAL</b>		

- 1- Needs improvement
- 2- Below Average
- 3- Satisfactory
- 4- Good
- 5- Very Good



## Answer Key

<p><b>Assessment</b></p> <p>3D Paper Bag Making</p> <p>1. 2. 3. Based on Rubric 4.</p> <p>Multiple Choice</p> <p>1. C 2. B 3. C 4. D 5. B</p>	<p><b>What's More</b></p> <p>1. Own answer</p>	<p><b>What I Know</b></p> <p>1. C 2. B 3. B 4. C 5. D 6. A 7. B 8. C 9. D 10. B</p>
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## ***References***

### Books:

Nolasco, B. C., M. J. Portento, DM. N. Ramos, DF B. Loscos, , MA. D. Uy, Z. A. Castro, and E. L. Joaquin Enrico (2018). *Living with Music, Art, Physical Education and Health*, Quezon City: Vibal Group Inc.

Quinitio, L. B., E. V. Cipriano, E. P. Buhain, J. H. Brioso, D. A. Lacia, A. A. Alonzo, and G. A. Solano (2017). *The 21<sup>st</sup> Century MAPEH in Action 6*. Sampaloc, Manila: REX Book Store.

### Electronic Resources:

<https://www.educba.com/install-blender/>

[https://docs.blender.org/manual/en/latest/interface/window\\_system/tabs\\_panels.html](https://docs.blender.org/manual/en/latest/interface/window_system/tabs_panels.html)

[https://www.youtube.com/watch?v=KbcyFO\\_GZBE&t=67s](https://www.youtube.com/watch?v=KbcyFO_GZBE&t=67s)

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