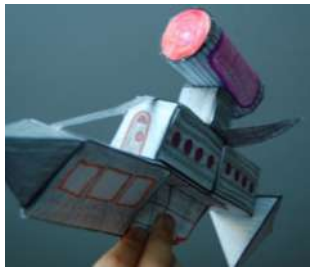
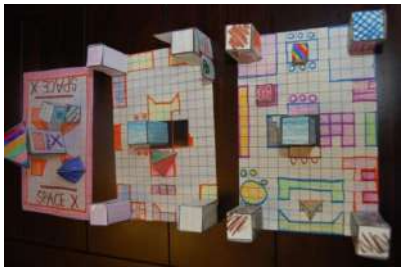
Week 5 Schedule: The Final Frontier



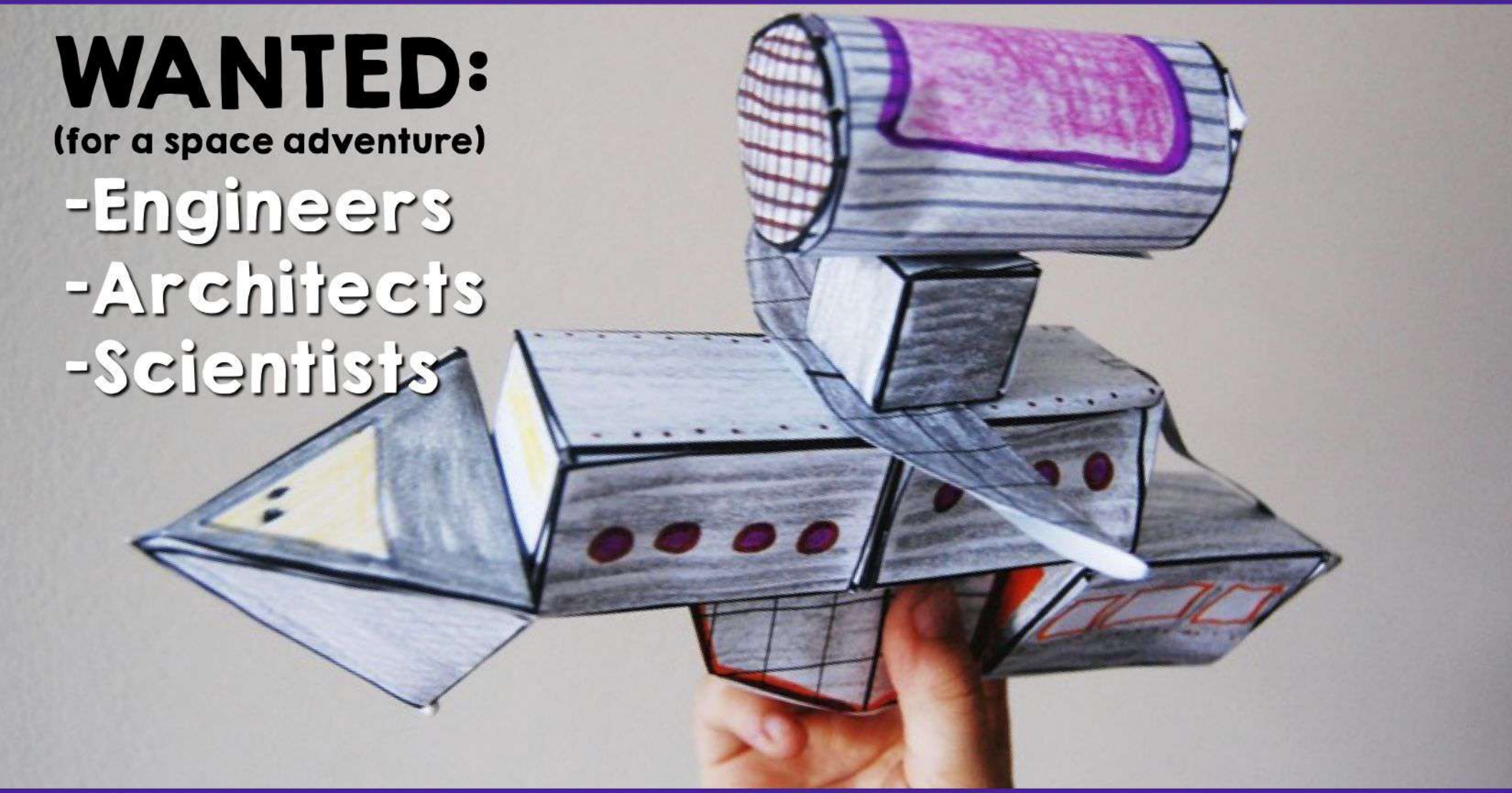


Complete the following tasks each afternoon. Estimated time to complete 1.5 hrs.

<u>Monday</u> July 13	<u>Tuesday</u> July 14	<u>Wednesday</u> July 15	<u>Thursday</u> July 16
• Start-Up • Teacher check in	• Design Major Parts	• Space Shapes: 3D & Symmetry	• Construction of nets (Spaceship)
Pages 5-12	Pages 14-21	Pages 23-29	Pages 31-52

Join our Summer Program Google Classroom using Join Code in your OSD Google Acct.: **3lsaes3**

FINAL FRONTIER



WANTED:
(for a space adventure)

-Engineers
-Architects
-Scientists

A Three-Part PBL for Math, Science, and ELA.
Project Based Learning

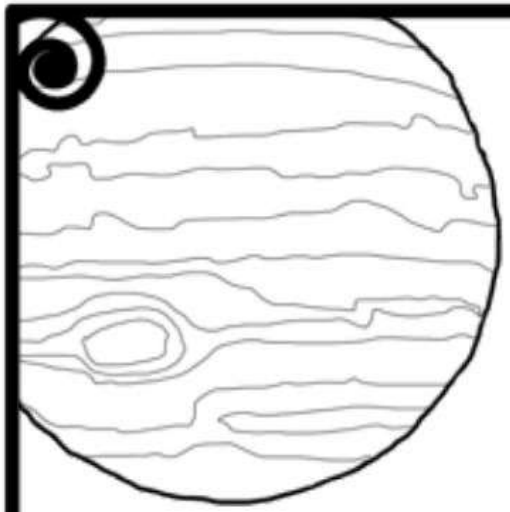
DIGITAL: DIVIDE & CONQUER

Objective: I will be able to design and create a 3D spaceship using geometry, symmetry and nets.

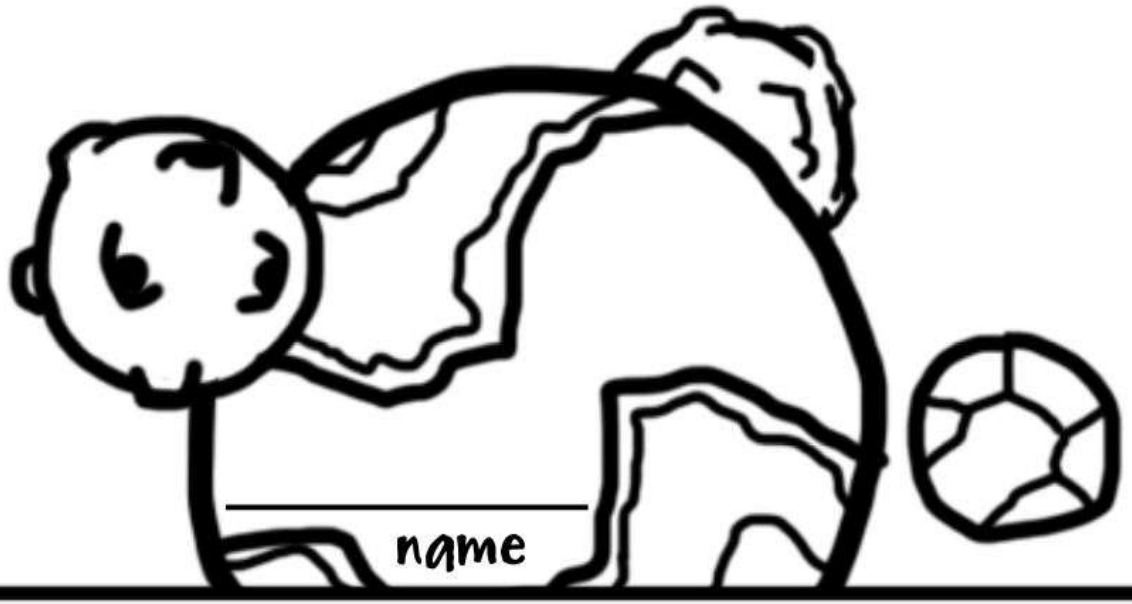
Assessment:

- ❏ Send a picture of completed spaceship to your teacher (text or email)
- ❏ Explain your project during your Monday phone call with your teacher
- ❏ Share what you did with your classmates during Thursday's Google Meeting

Monday



THE ENGINEER



name

ENGINEER OBJECTIVE

Your OBJECTIVE as ENGINEER is to design and create a three dimensional spaceship using nets, symmetry, and geometry.

SKILL AREAS

-design/creation
-organization
-fine motor skills
-creativity thinking

MATH AREAS

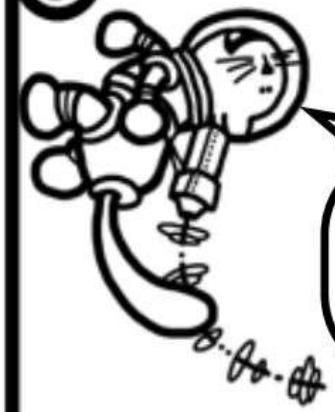
-geometry
-symmetry, shapes
-building nets
-vocabulary

As you move through this project you will answer questions, refine your skills, and design a spaceship. Use the SCHEDULE of EVENTS, on the next page, to keep you on track.

This project is scaffolded and each section builds onto the next. Design decisions impact each page of your future choices. It's important to pay attention to details and take your time.

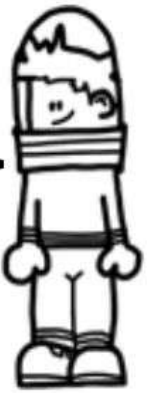
Most importantly–have fun and explore your ideas!

SCHEDULE OF EVENTS



MEOW! My name is Cat Commander. Welcome to my rig! Are you ready to build a spaceship?

Below is a checklist of activities you'll need to accomplish. Once it's done YOU are not just an engineer--you're a captain!

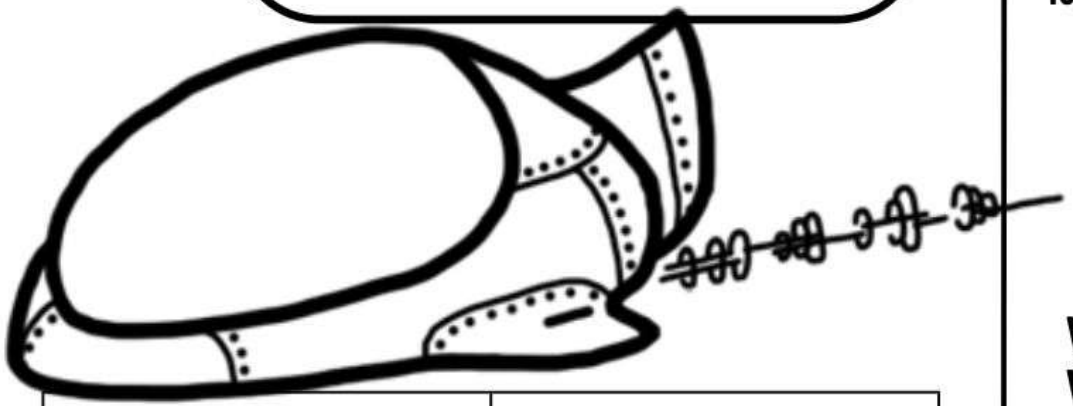


IN THE GARAGE	COMPLETE	INFORMATION
PARTS & LABOR		Learn about different shapes and how they will fit together to build a ship.
TRANSPORTS		All ships are different. What are you interested in?
DESIGN		Develop your ship and decide what it will begin to look like.
SPACESHAPES		Build your own 3D shapes.
SPACESHIPS		Build your ship with nets that form classic 3D shapes.

PARTS AND LABOR

Look at some of the shapes and parts that make up a ship.

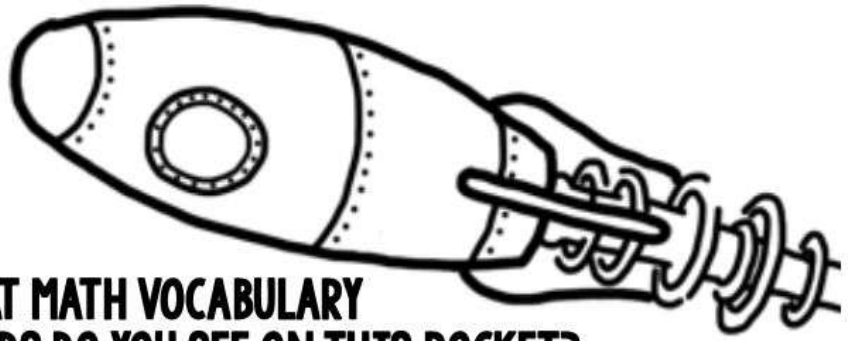
List some key vocabulary words you think of when you see the ship below me.



metal	

Most vehicles, from cars to trains and spaceships, are created from thousands of smaller shapes. Each piece fits together to create one large and final masterpiece.

As an engineer, it will be your job to see how pieces fit together. You will need to think big and small.

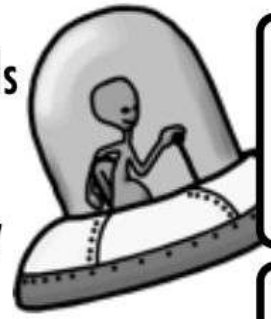


WHAT MATH VOCABULARY WORDS DO YOU SEE ON THIS ROCKET?

PARTS AND LABOR

Math vocabulary is crucial in your field of engineering. Here's a list of vocabulary words you need to understand and utilize.

In your own words, define each term or draw a picture to demonstrate understanding.



AREA

PERIMETER

GEOMETRY

THREE DIMENSIONAL

SYMMETRY

TWO DIMENSIONAL

NETS

SCALE

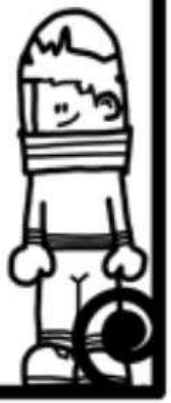
PARTS AND LABOR

OKAY, WE'RE GOING TO PLAY A GAME. THE RULES ARE SIMPLE:

- Only use the shapes listed on the left side.
- Draw a ship with those shapes.
- The ship must have all the part listed on the right.
- Only use shapes as many times as they are listed.

STRAIGHT LINE
STRAIGHT LINE
STRAIGHT LINE
SQUARE
SQUARE
CIRCLE
CIRCLE
RECTANGLE
RECTANGLE
TRIANGLE
TRIANGLE
CURVED LINE

WING
WING
COCKPIT
ENGINE
ENGINE
TAIL
BODY
DOOR



TRANSPORT

Spaceships are like a community. There isn't just one kind of ship, there are all kinds. Some spaceships are HUGE and hold thousands of people, who live on them. Other ships are much smaller and might only hold 2-3 people.

Below is a list of 4 different kinds of spaceships. Take your time and sketch out what you think each one looks like. As you do this, think about what makes each important and why each one is designed a particular way.

BATTLESHIP

SEARCH AND RESCUE

FIGHTER

TRANSPORT POD

TRANSPORT

You may choose to create a ship from the previous page or develop your own particular need.

Fill in the boxes below with information on the type of ship you'd like to create.

Think about movies or television shows with space ships to help you. It might help you get ideas.

SPEED

FLOATS — VERY SLOW — AVERAGE — LIGHT SPEED — WARP SPEED

USED IN...

- BATTLE
- PEACE KEEPING
- DAILY LIVING
- EXPLORING
- COMMAND
- RESCUE

SIZE (IN UNITS)

- 10 OR LESS
- 50 OR LESS
- 100 OR LESS
- 500 OR LESS
- 1,000 OR LESS
- OVER 1,000

CAPACITY (HUMANS)

- 10 OR LESS
- 50 OR LESS
- 100 OR LESS
- 500 OR LESS
- 1,000 OR LESS
- OVER 1,000

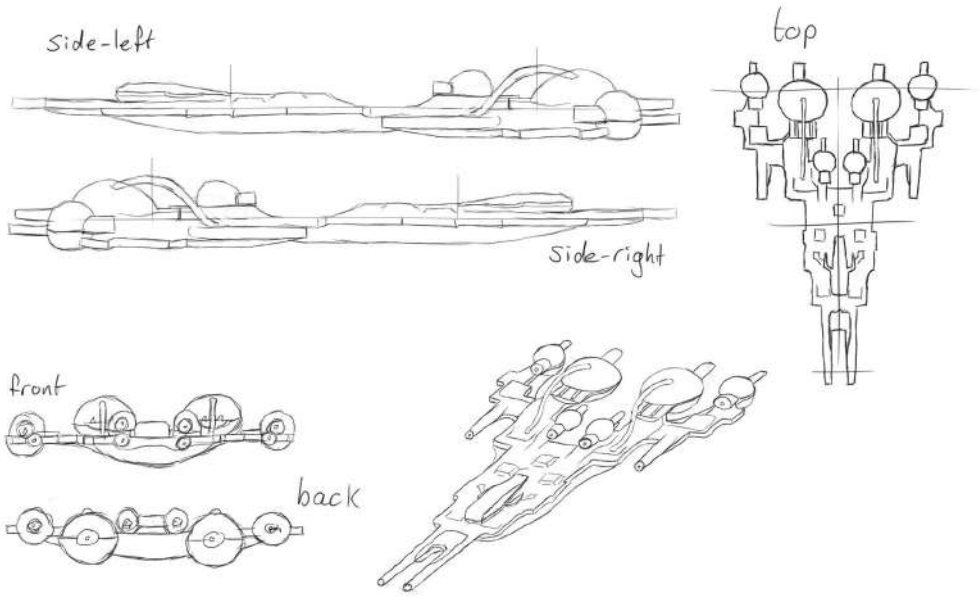
MADE FROM

- PLASTIC
- STEEL
- TITANIUM
- ALIEN METALS
- JUPITER ROCKS
- MARS LIQUID STEEL

WHAT IS THE SHIP'S PURPOSE?

WHY DO YOU WANT TO MAKE THIS KIND OF SHIP?

Tuesday



DESIGN, MAJOR PARTS

OBJECTIVE:
Choose SIX MAJOR parts for your spacecraft.
Your spaceship must include at least SIX major parts.

WHAT IS A MAJOR PART?
Major parts means they will have to be attached. Such as wings, a hull, or a tail. You can choose how big or small the parts are.

- Use the menu of items to assist you, if you need.
- Highlight or circle all items you are including.
- You are not limited to this list.

WINGS	CONTROL ROOM	TECH STATION	ESCAPE PODS	SENSOR
COCKPIT	ENGINE	VIEWING AREA	UPPER DECK	WARP SPEED
TAIL	BACK-UP ENGINE	COMMANDER'S ROOM	LOWER DECK	BLASTER
HULL	HATCH	DROID HOLDER	OXYGEN TANK ROOM	TRAILER
MAIN DECK	CRANE	SOLAR PANELS	BOARDING RAMP	FUEL TANK
LOWER DECK	SUSPENSION RAY	BATTLESHIP	SHIELD GENERATOR	HANGAR FOR SMALL JETS

DESIGN, PART LIST

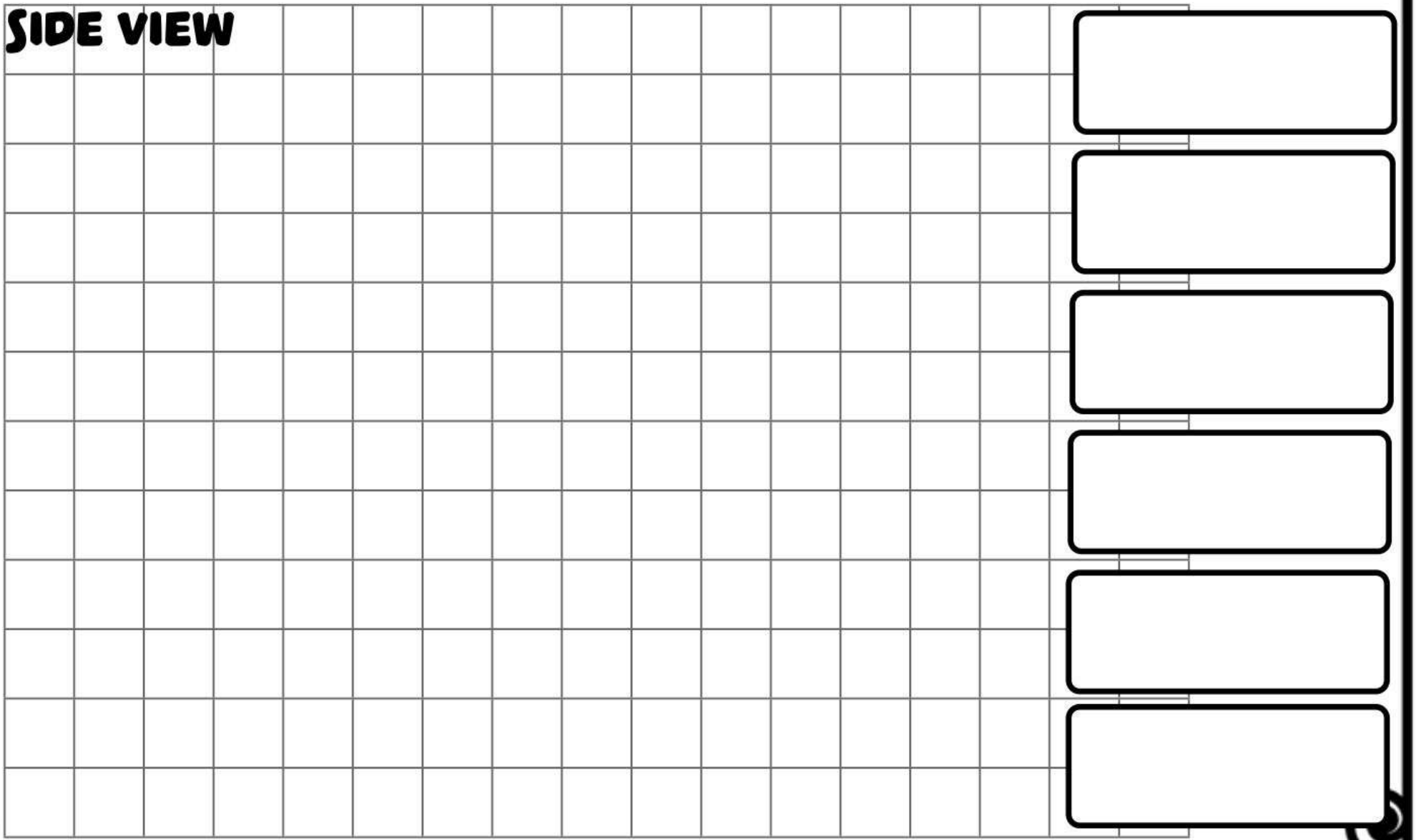
List the parts you're planning to install onto your spaceship on the checklist below. This will help guide your design as you create the specs for your craft. Check off each part once it has been created in the design and in the 3D final form.

PART	INCLUDED DESIGN	INCLUDED FINAL FORM

PART	INCLUDED DESIGN	INCLUDED FINAL FORM

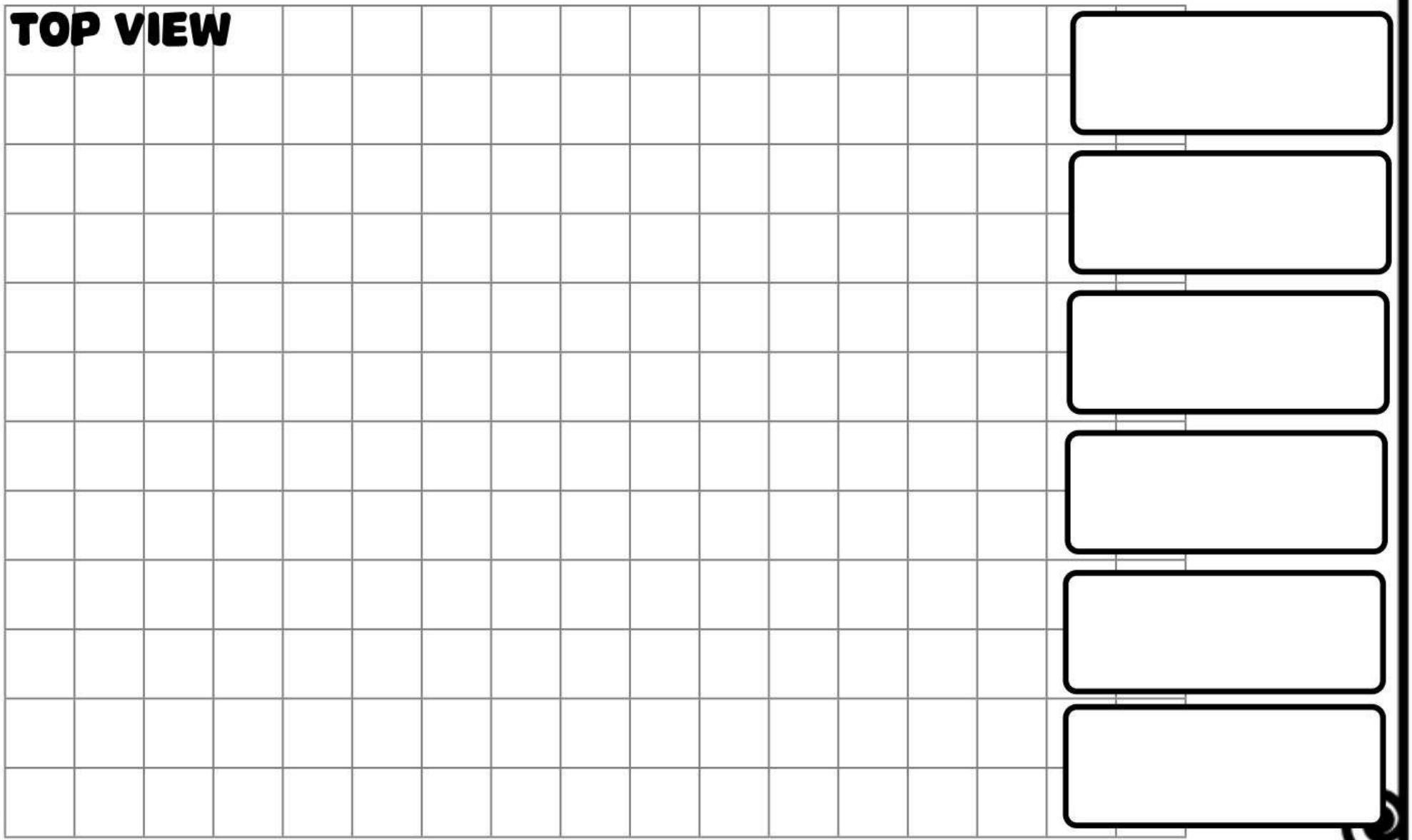
DESIGN PANELS

Below are your blueprints. Draw a sideways picture of your ship. Add color and label at least six parts on the right side of the page.



DESIGN PANELS

Below are your blueprints. Draw a top picture of your ship. Add color and label at least six parts on the right side of the page.



DESIGN PANELS

Below are your blueprints. Draw a front picture of your ship. Add color and label at least four parts on the right side of the page.

FRONT VIEW

DESIGN PANELS

Below are your blueprints. Draw a bottom picture of your ship. Add color and label at least four parts on the right side of the page.

BOTTOM VIEW

DESIGN SIZE

Look back to the DESIGN PANELS and determine the exact area and perimeter, using square units of each section of your spaceship on the blueprints.

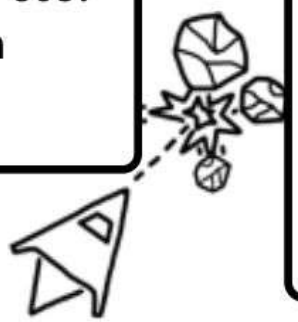
You may do this two ways:

1. Count each box as a unit.

   Find the area and perimeter for each of the three design VIEWS you created in your blueprints.

2. Count each box as a set of units. (example 1 box = 10 units)

   You pick what kind of scale to use. It should be the same for each blueprint.



Write and label your answers below.

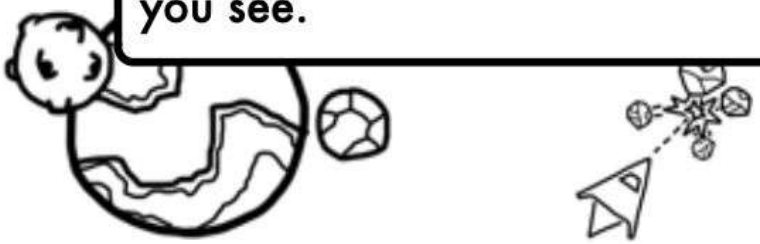
FRONT

SIDE

TOP

DESIGN PIECES

FIRST
Look back at the DESIGN PANELS and decide what kind of shapes you see.

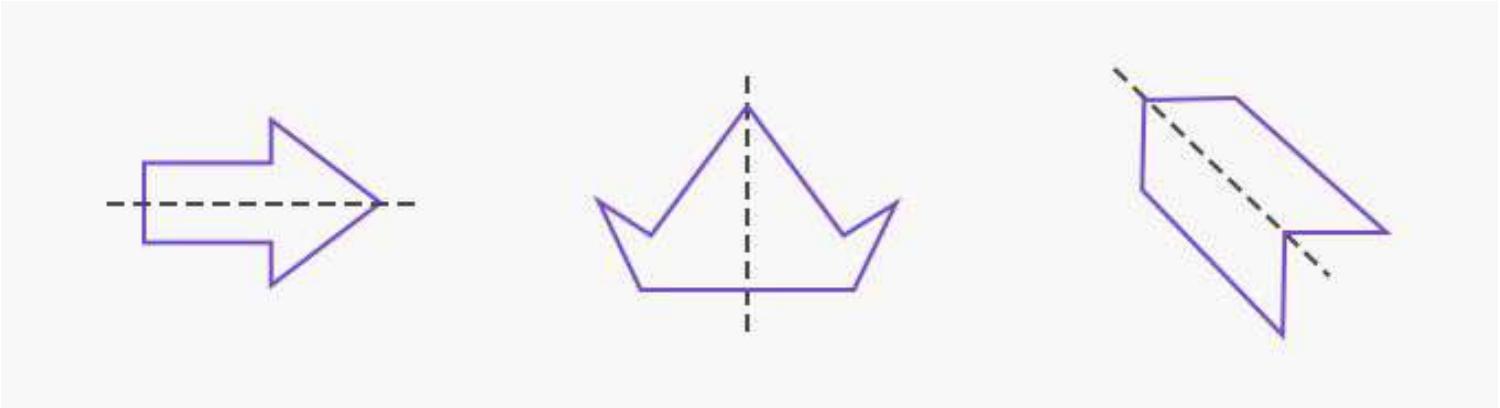


NEXT
In the spaces below write the shapes and parts that fit together.

Use this as a chance to determine which shapes will help you create your spaceship in the next section.

FRONT	SIDE	TOP	BOTTOM

Wednesday

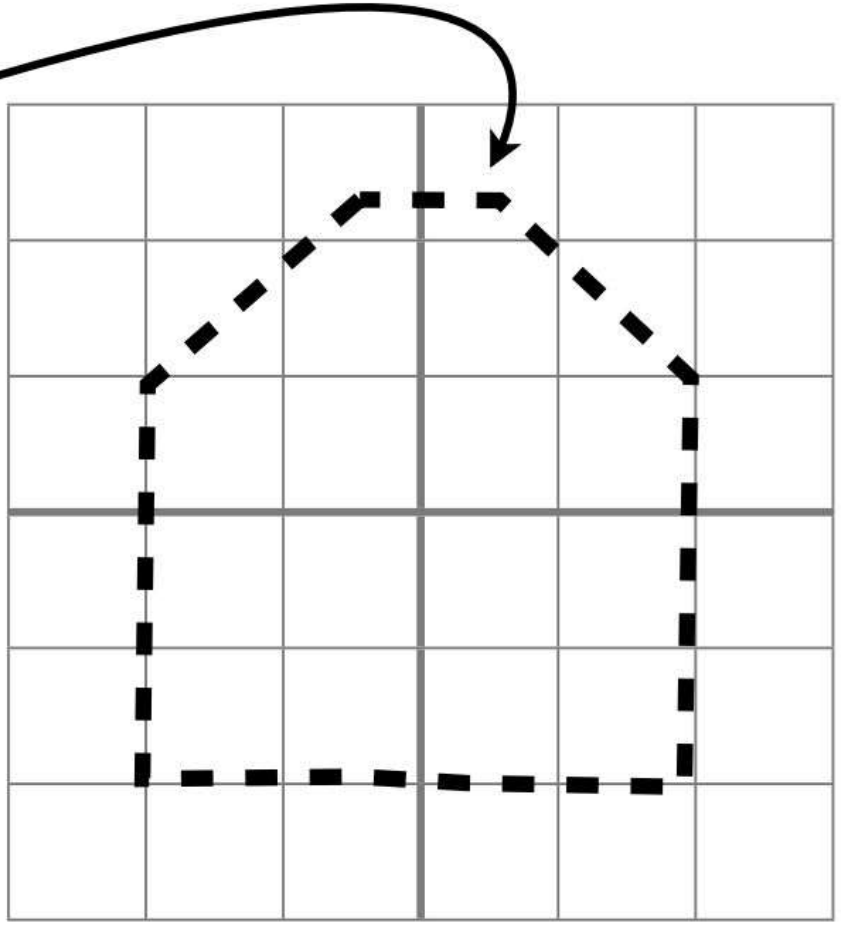


SPACESHAPES

In spaceshapes, you will be building your own three dimensional shape which will be attached onto your spaceship. Look at your design and determine a piece from it that you would like to create. A good choice could be a wing or tail, but you can choose.

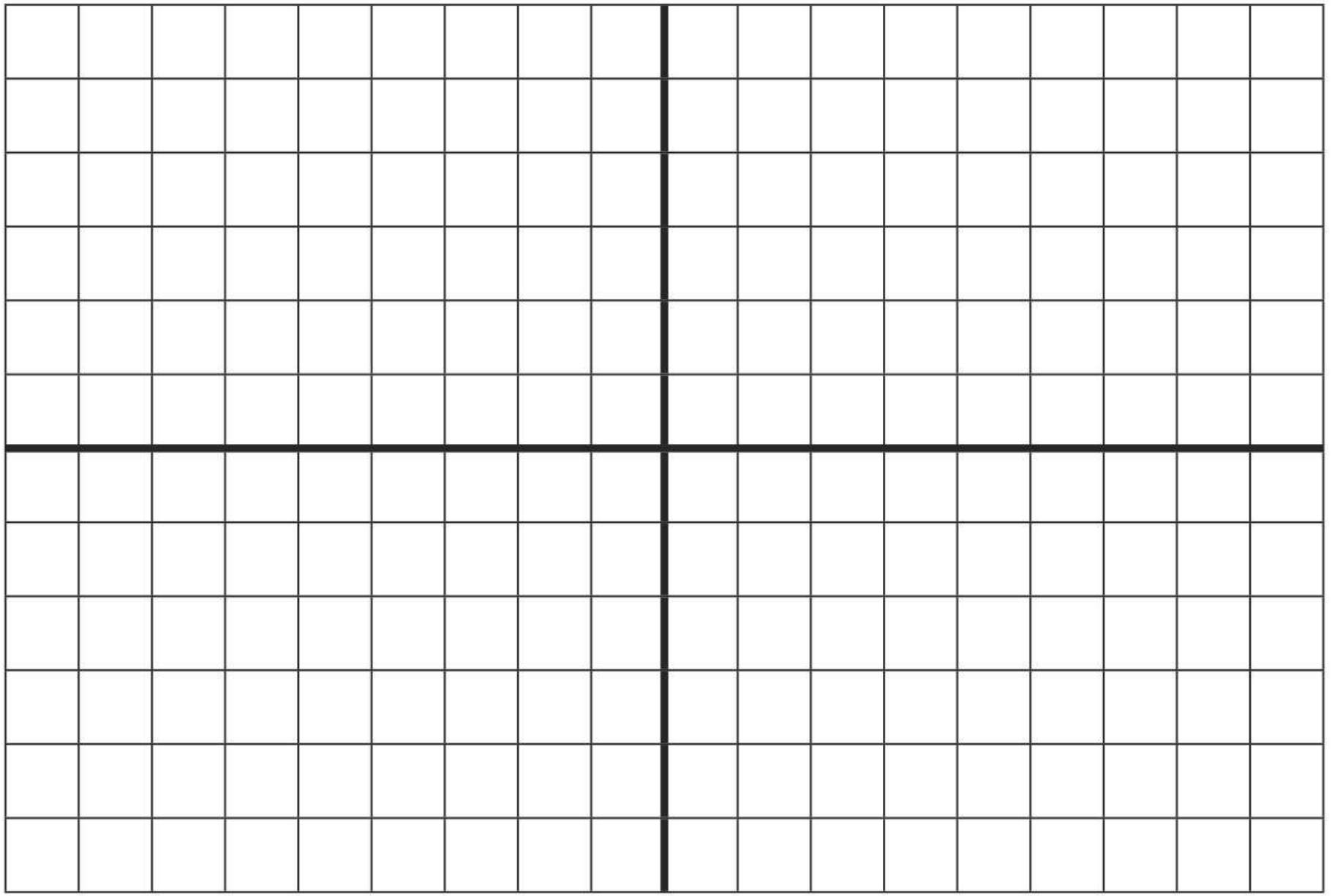
GRAPH PAPER & SYMMETRY

1. For 3D symmetrical objects you'll need to have multiple sides.
2. Use graph paper to help make each side equal.
3. Color or draw details on your shape before you cut it out.
4. After you symmetrical draw your shape, cut it out and glue it together.
5. Decorate as needed.



SPACESHAPES

Use this graph paper to create original 3D shapes for your ship.
You'll need to use symmetry for them to match up and fold on both sides.
The two middle lines are in bold to assist you. Include tabs that can be used to connect the pieces.



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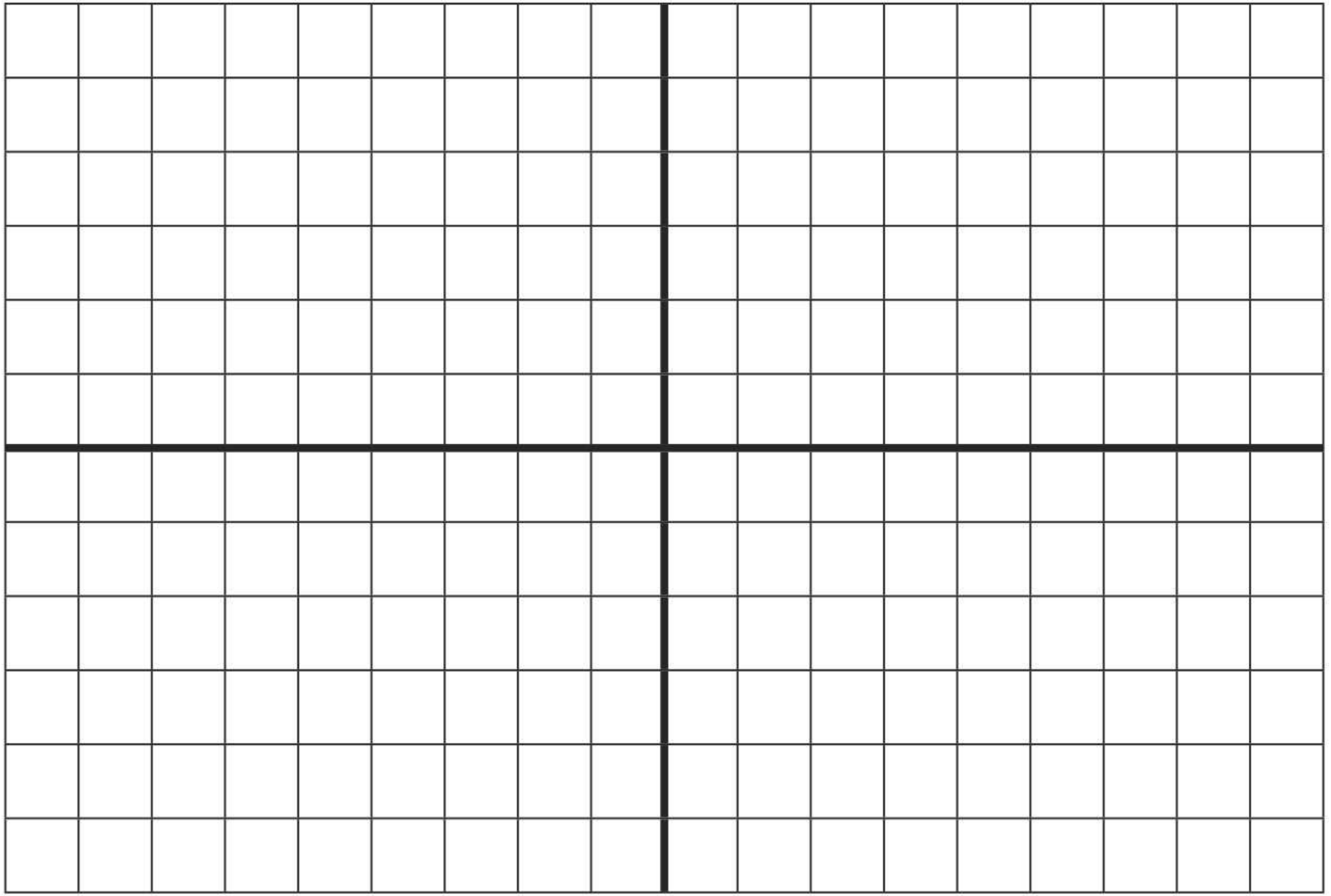

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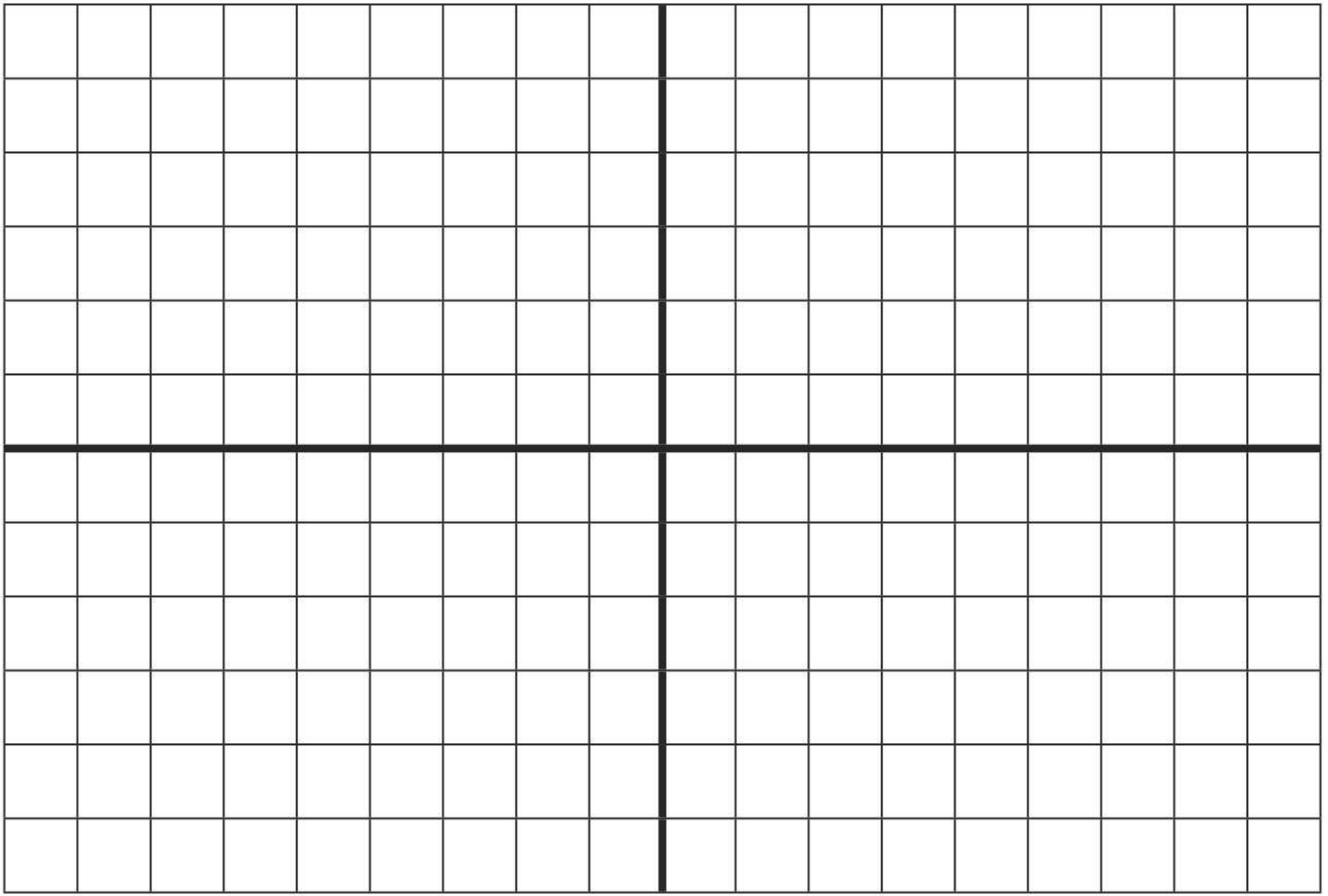
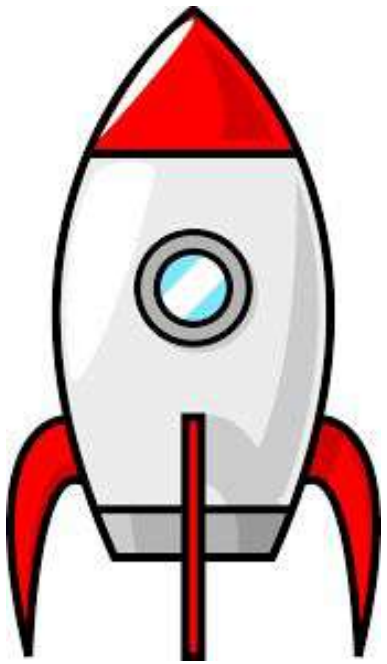


Thursday



SPACESHIPS

It's time to build three dimensional shapes from nets.
Pick nets and shapes (you created) that will fit particular parts of your ship.

BUILDING NETS

1. Nets are not labeled. You will need to problem solve the net and shape it will make.

2. Once a net is picked, draw or color it first before any cutting takes place.

3. Then cut it out. DO NOT cut off the tabs.

4. Fold the nets in and glue or tape them together.

5. Done!

ADDING NETS TOGETHER

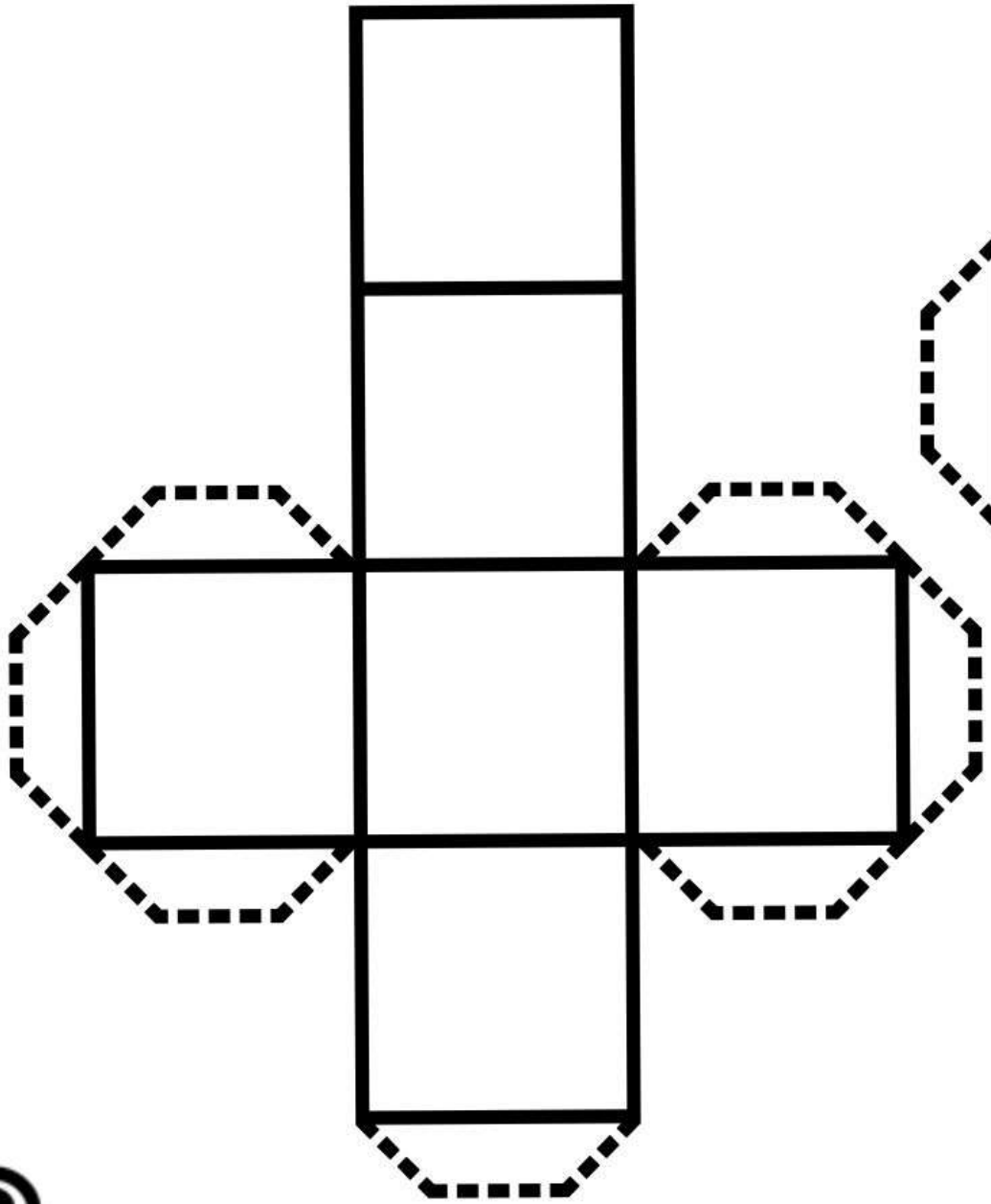
Assembling the spaceship together takes care and time. It is recommended to create all parts (nets) first before any gluing to taping takes place.

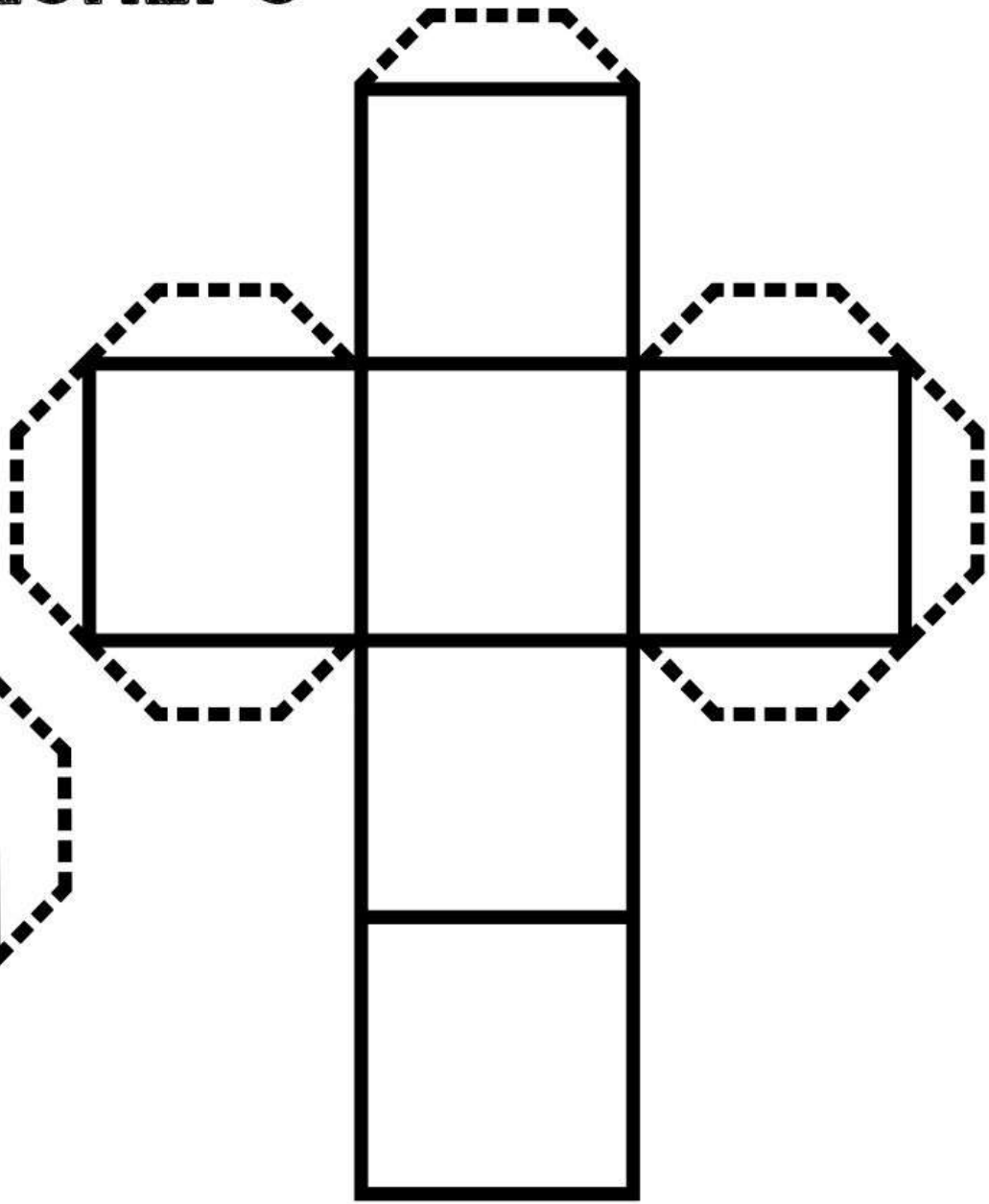
As the ship is assembled, place parts together by laying them out and seeing how they will fit together.

If everything is completed and you are satisfied with your work, you may begin gluing or taping them together.

STICKY TIP: You spaceship will probably tip over, so use sticky tack to help it stand up straight when you're building.

SPACESHIPS





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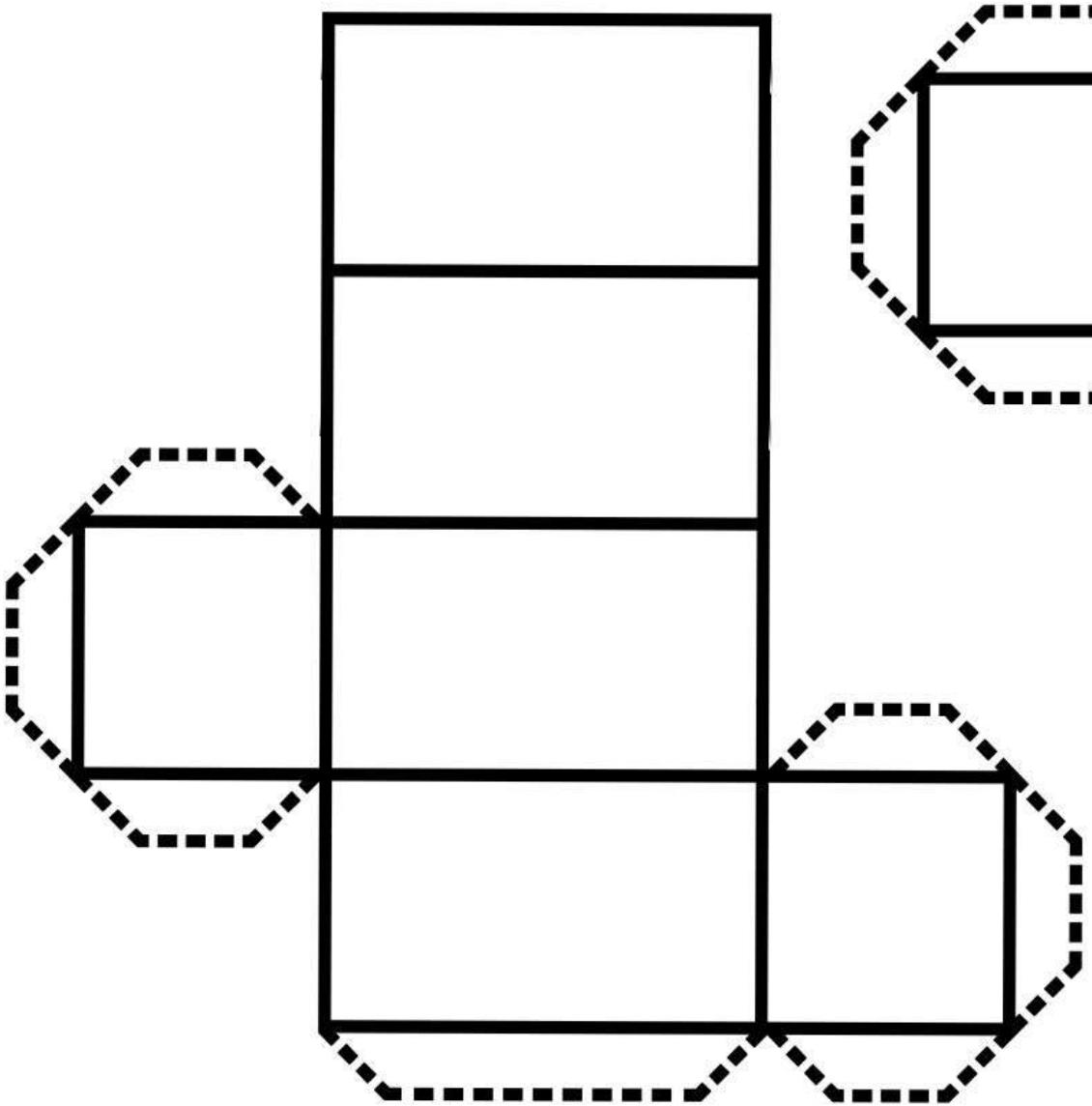

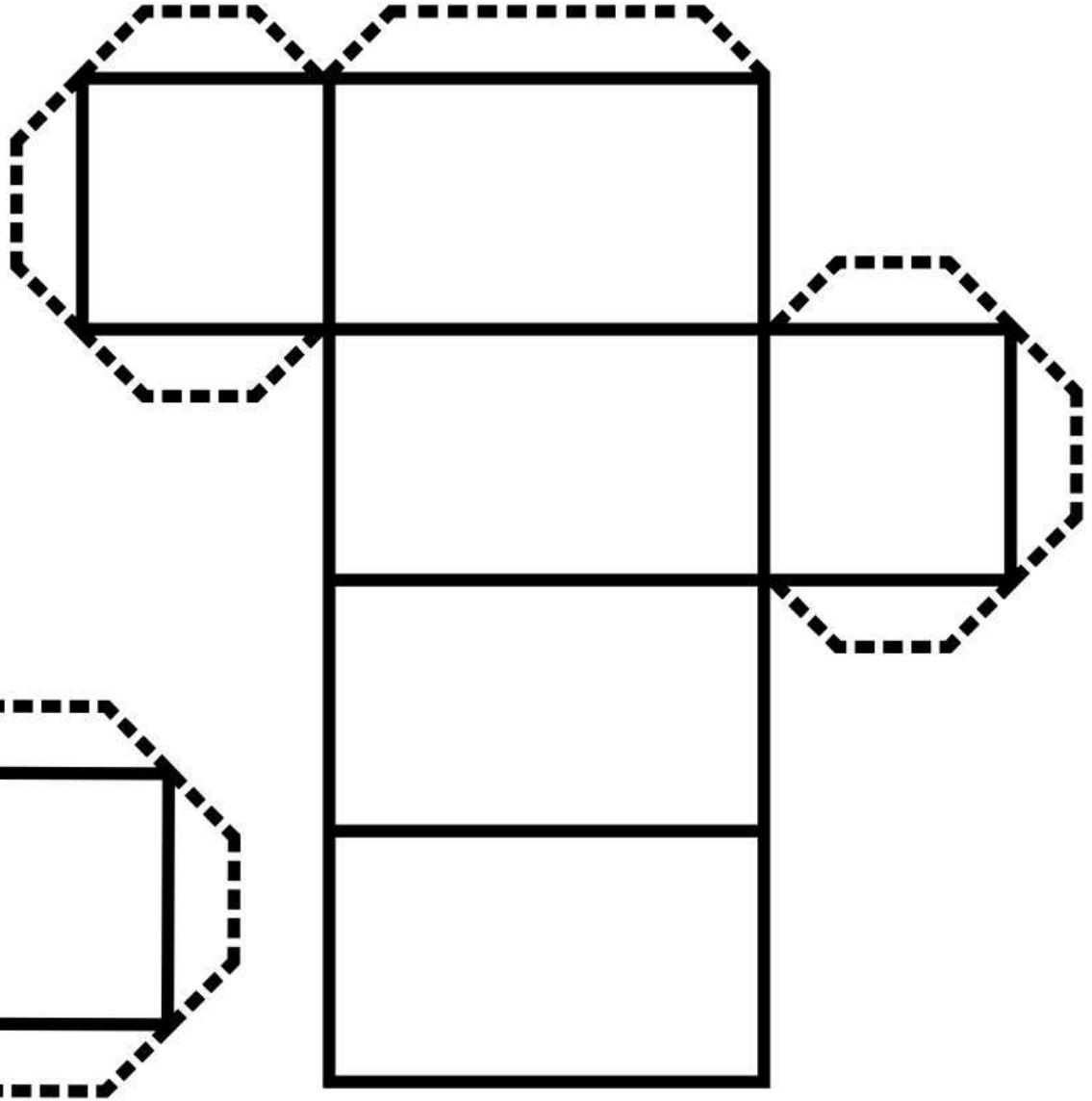

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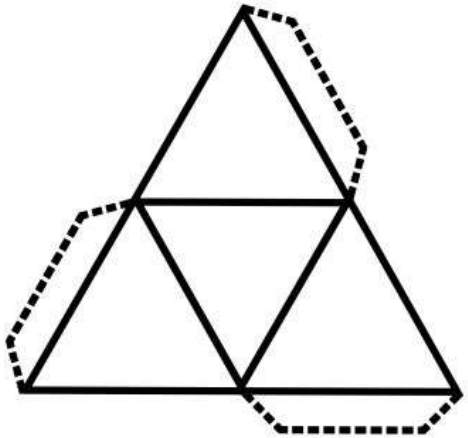

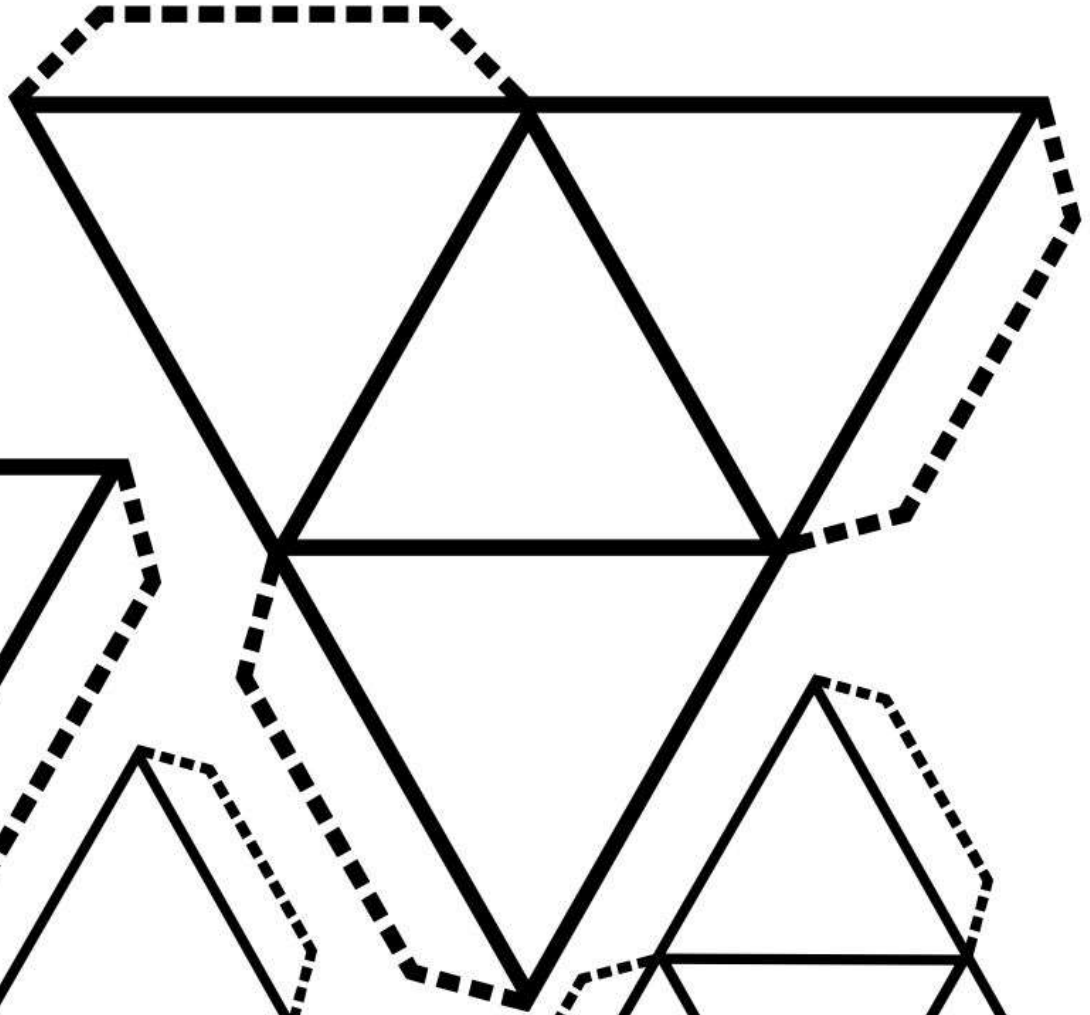

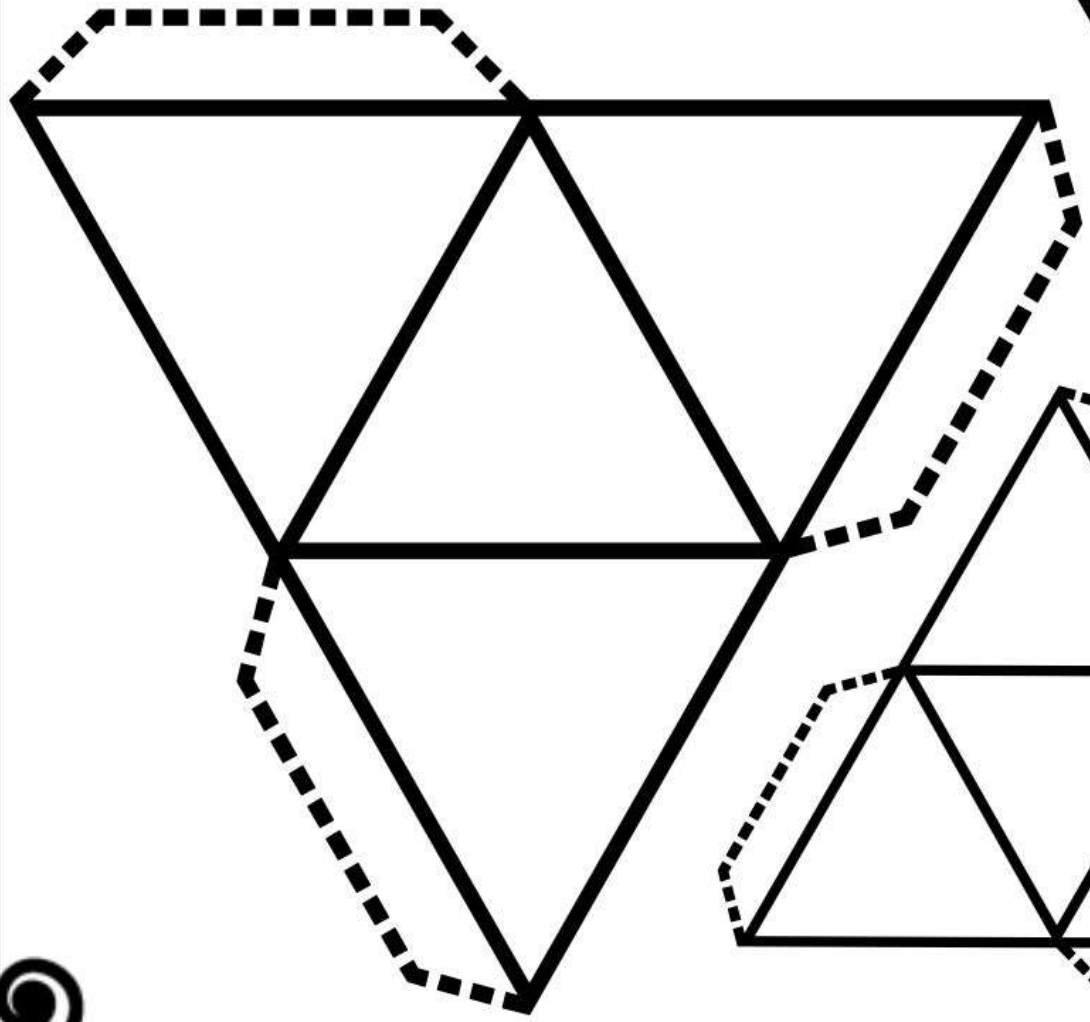

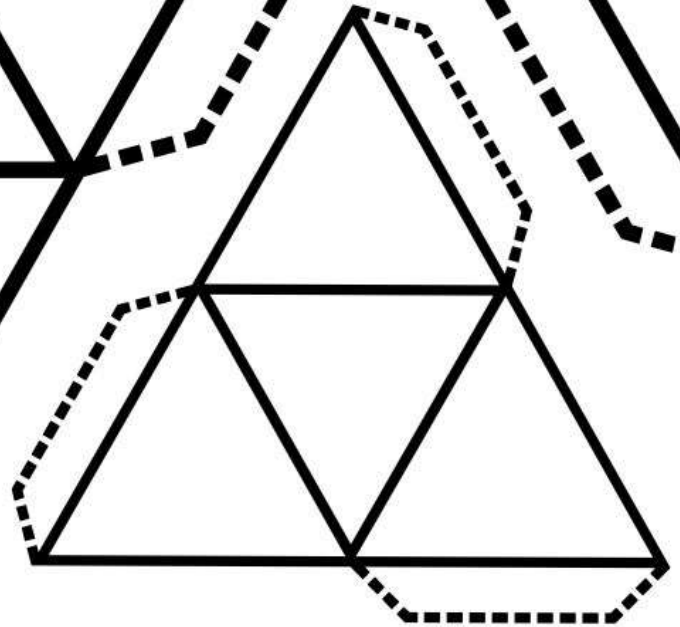

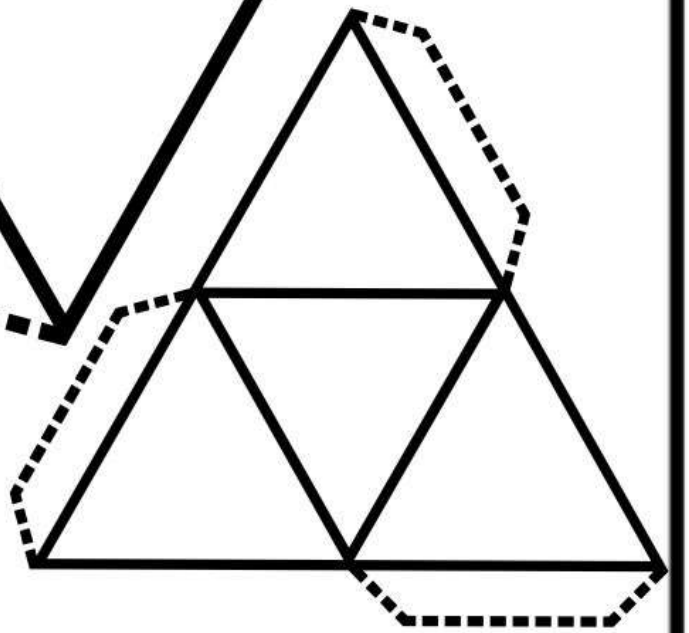

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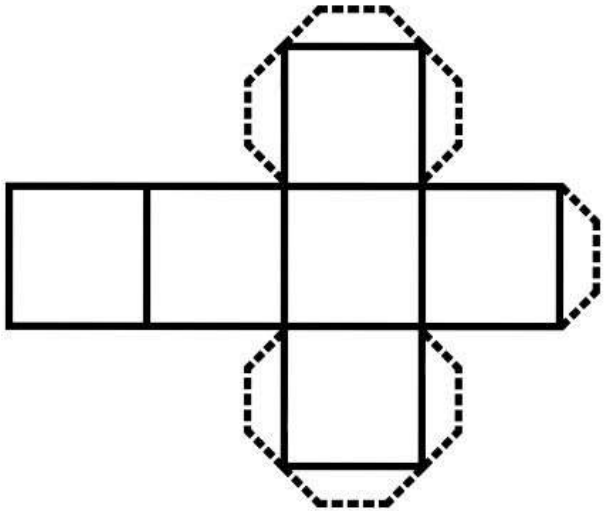

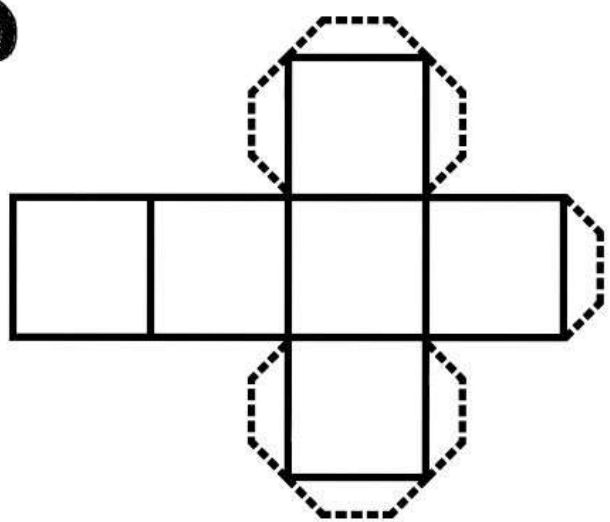

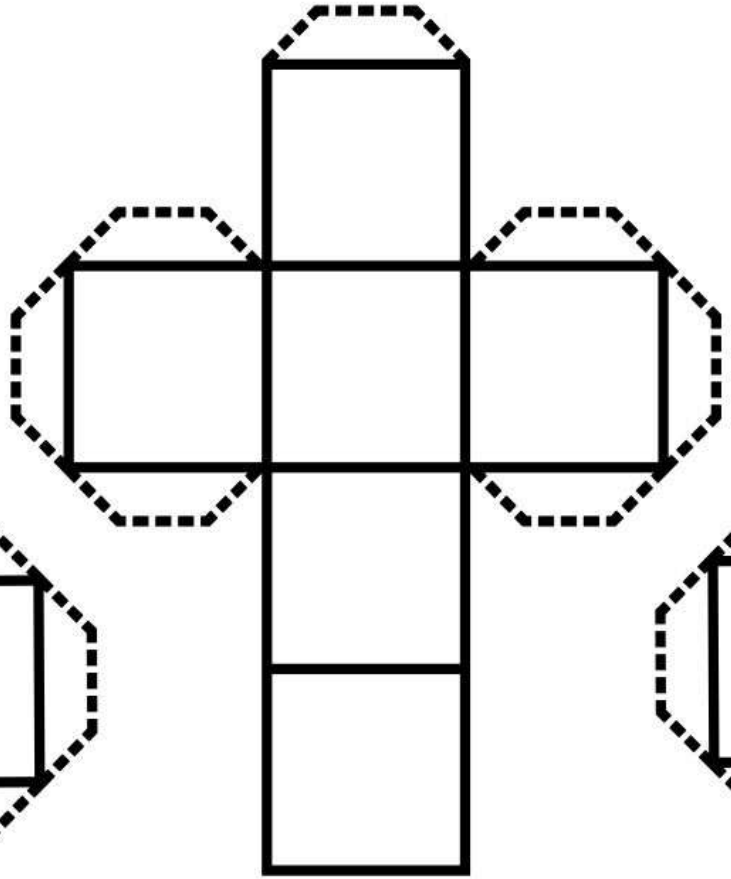

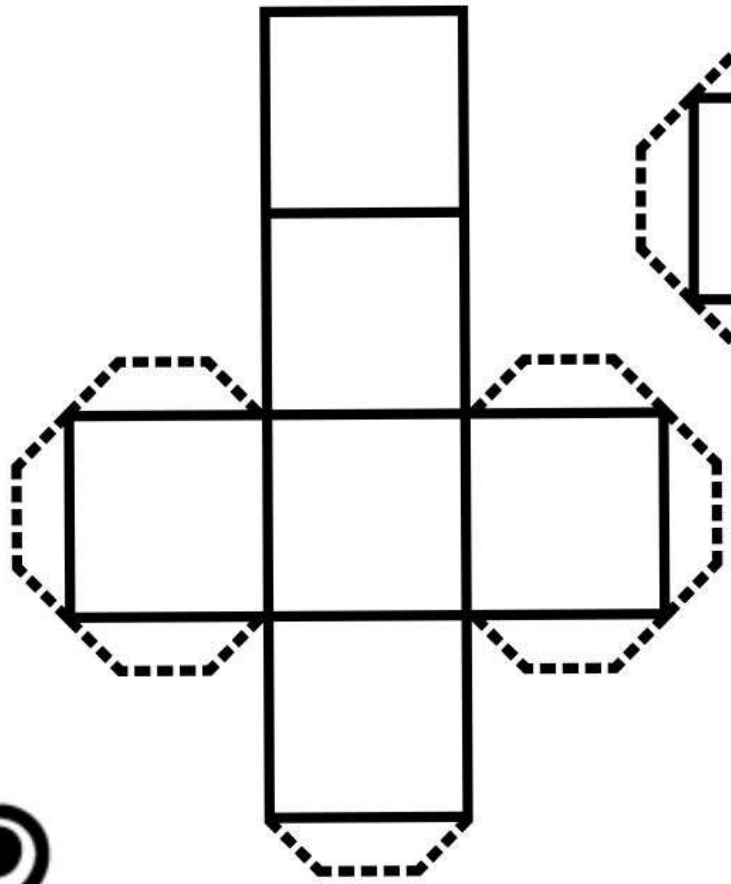

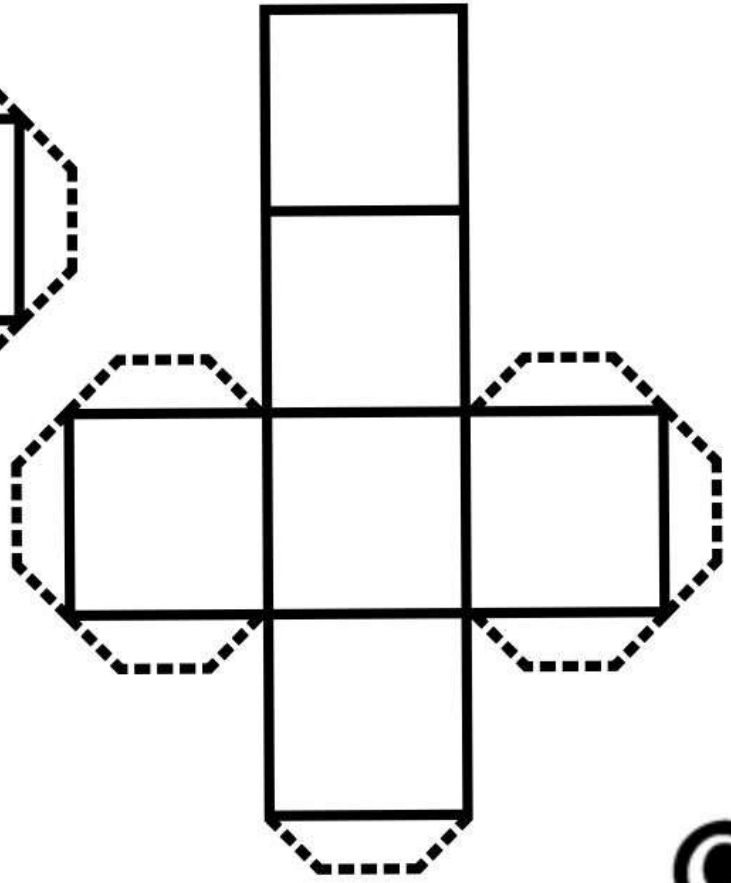

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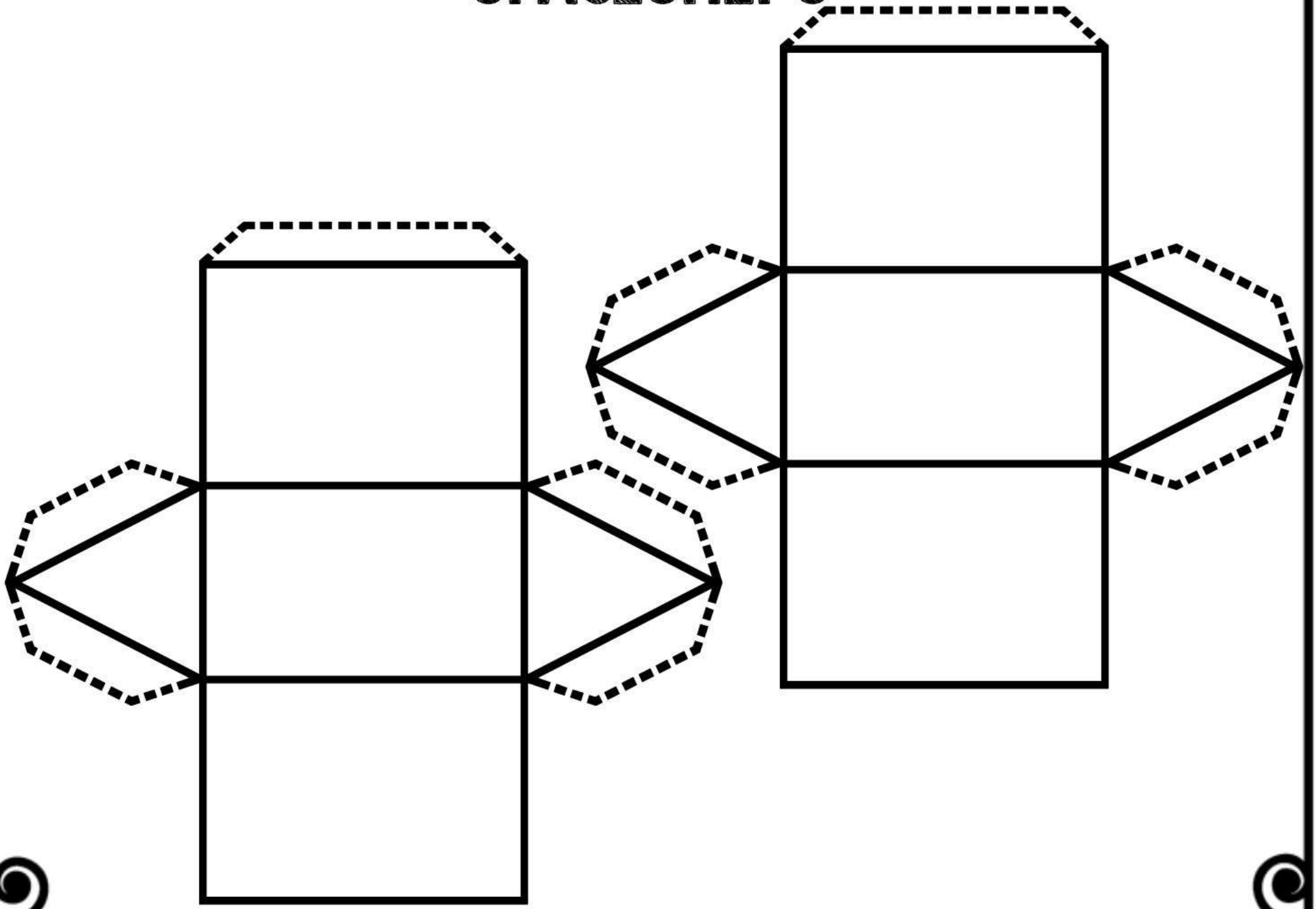

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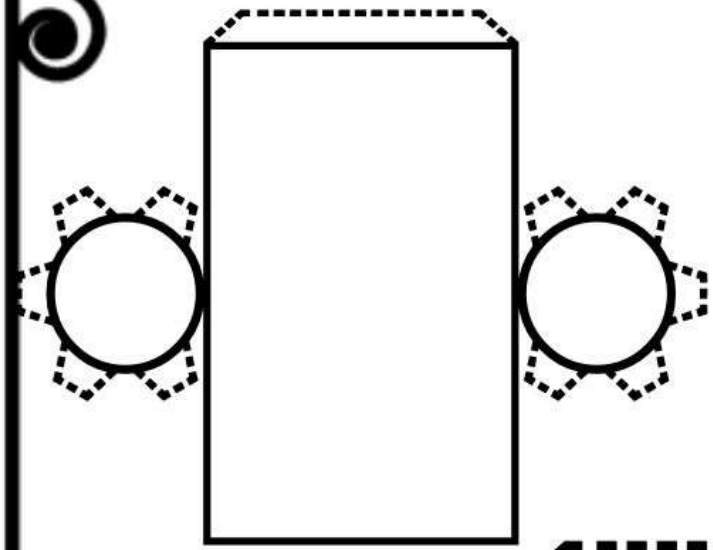

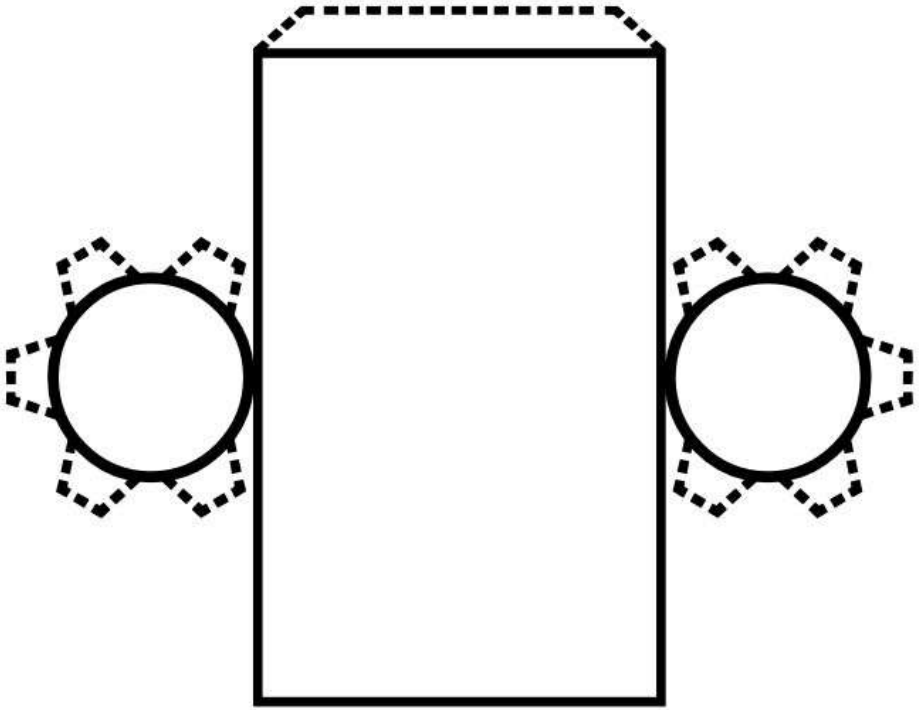

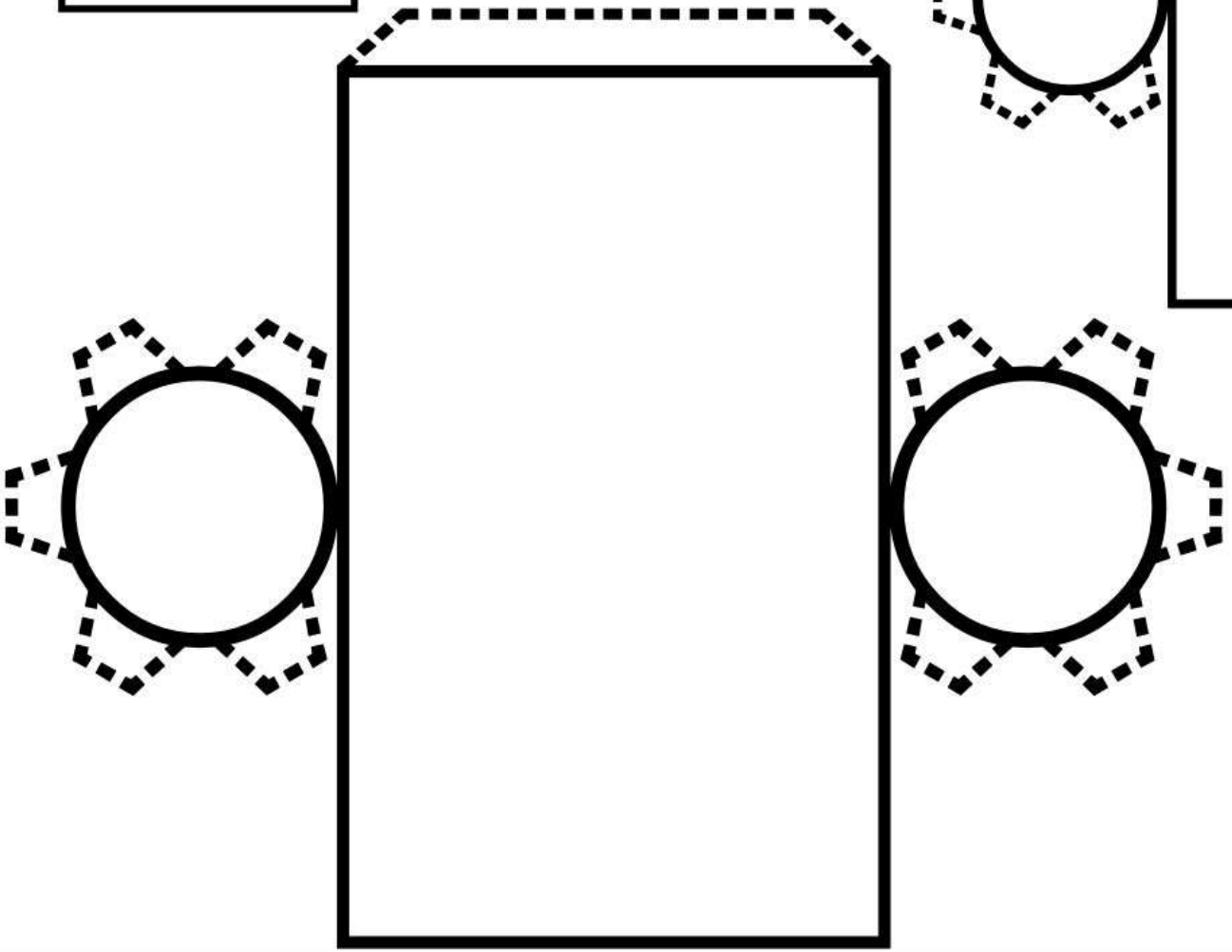

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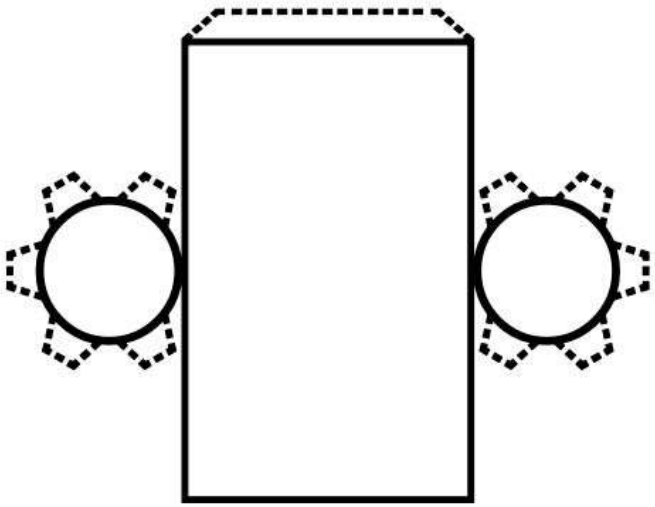

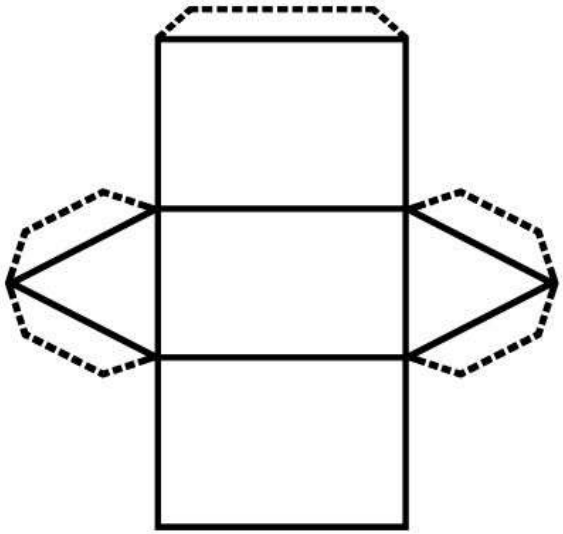

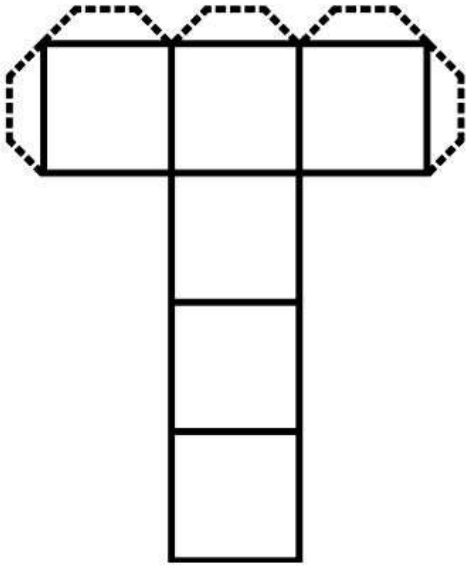

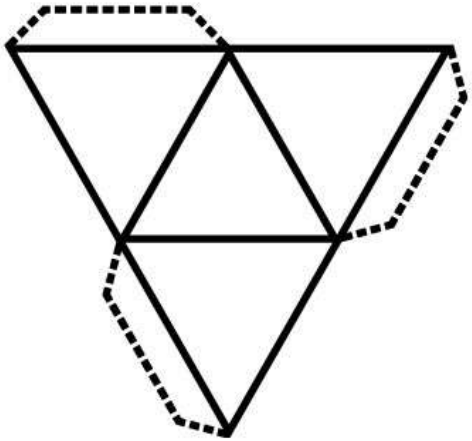

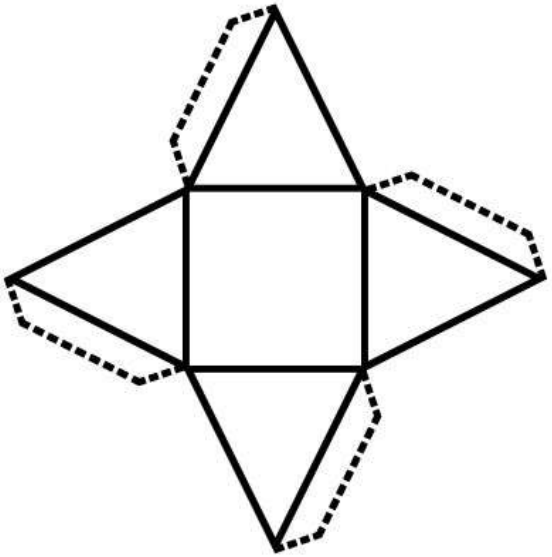

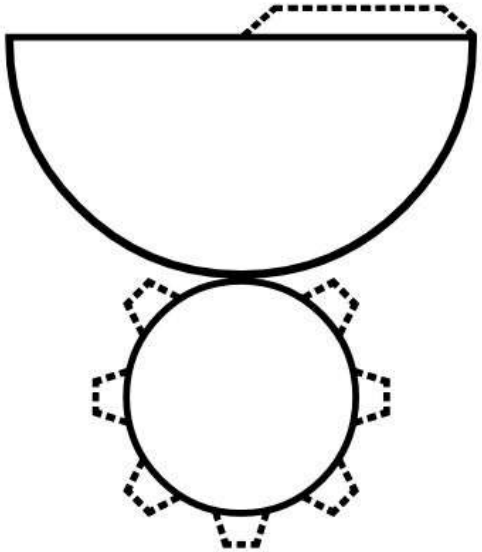

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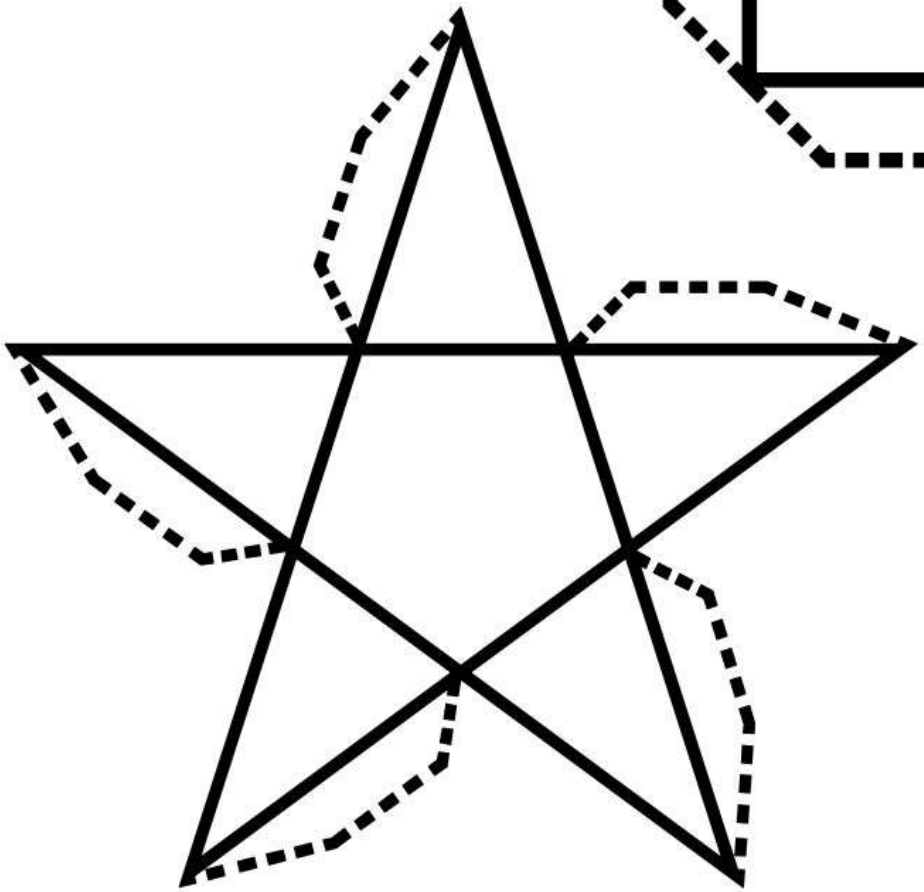

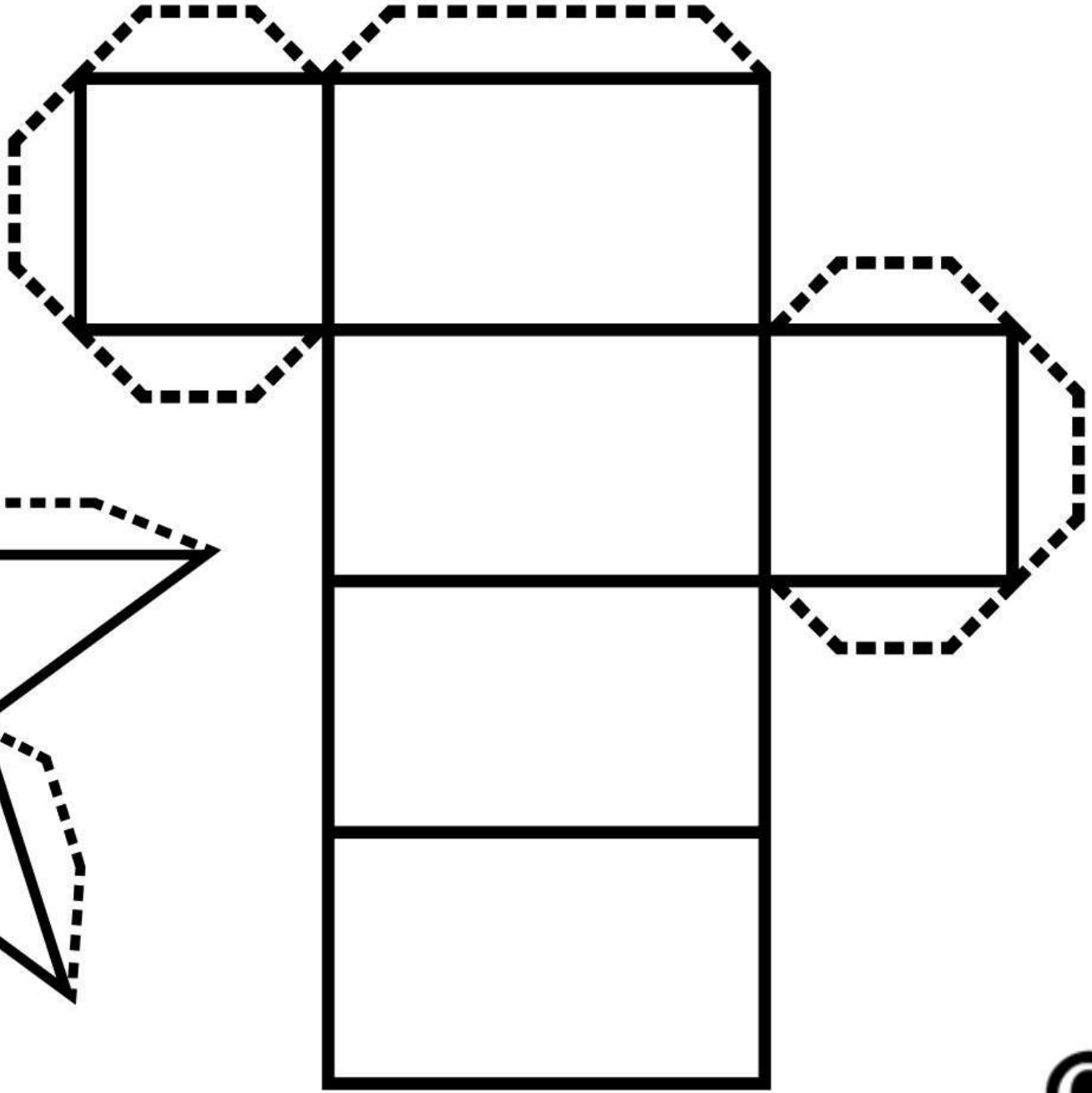

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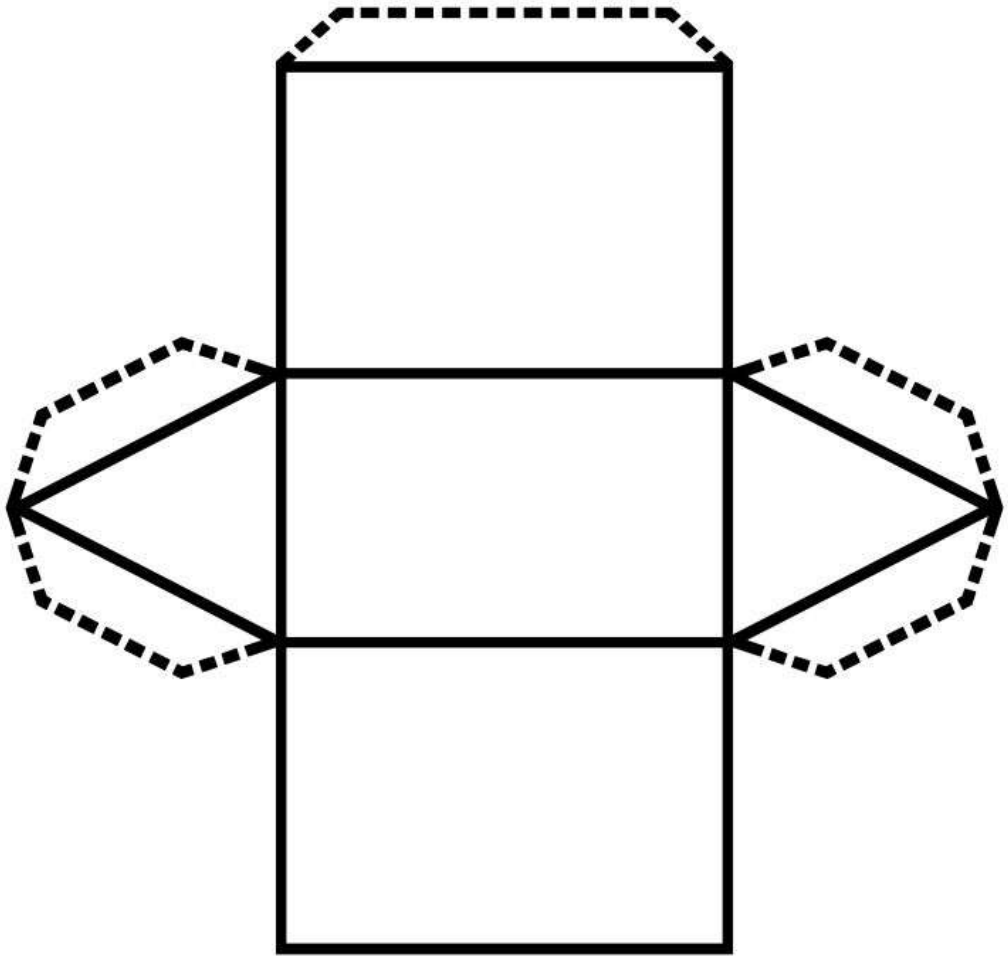

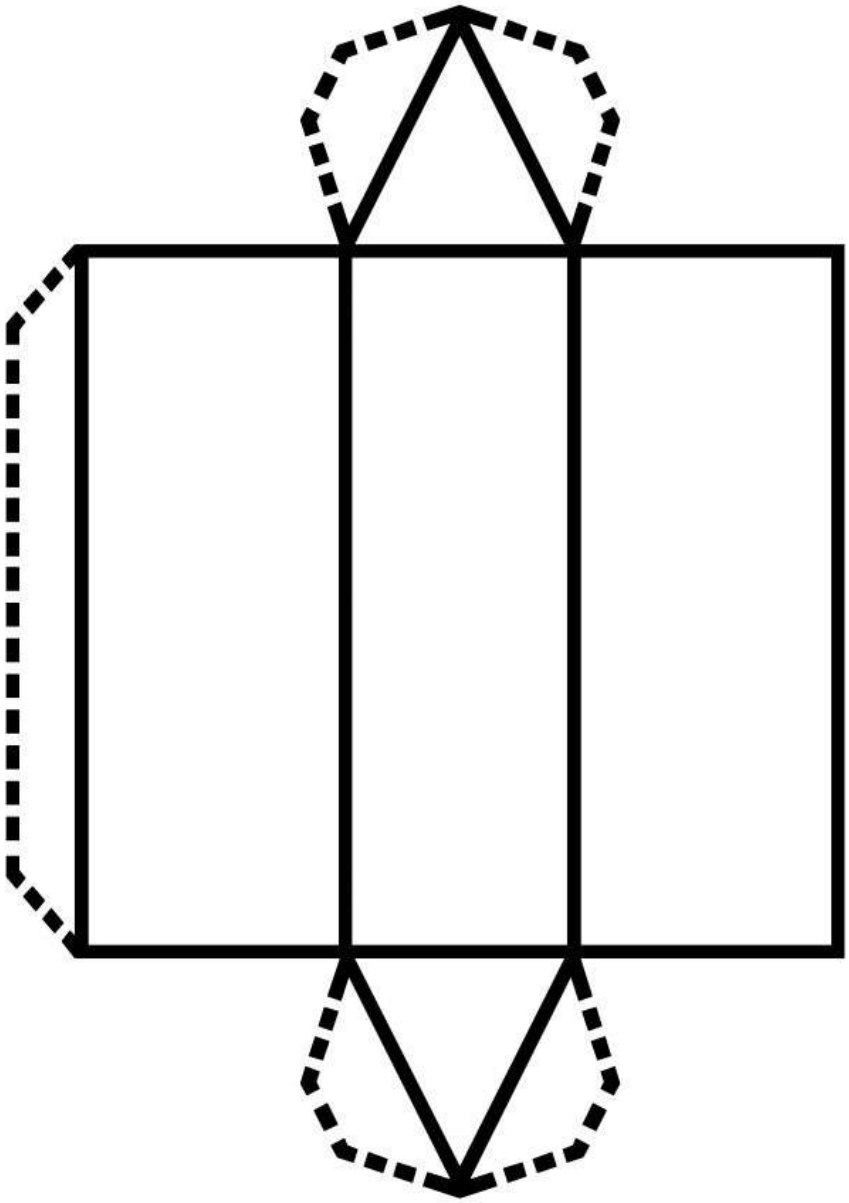

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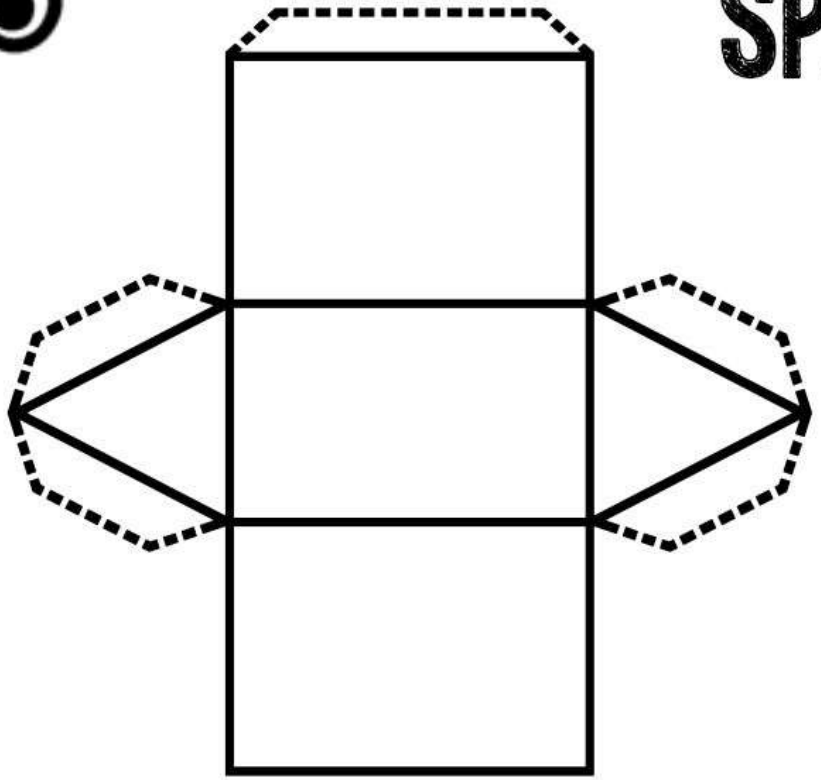

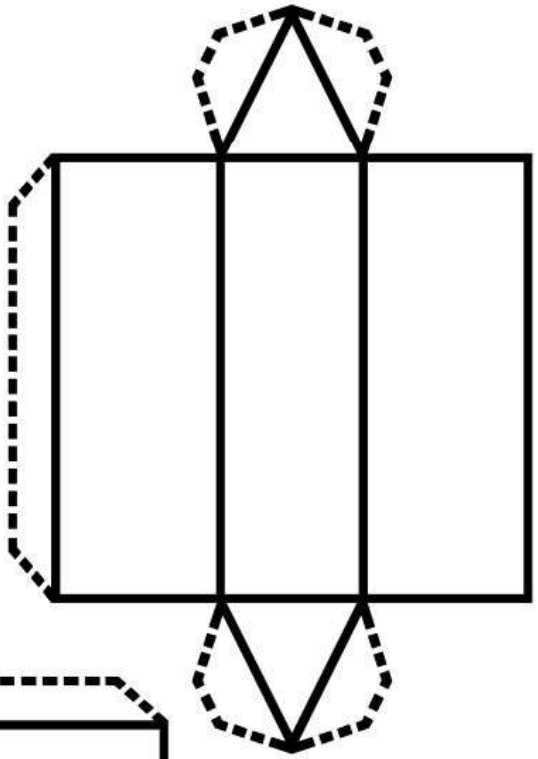

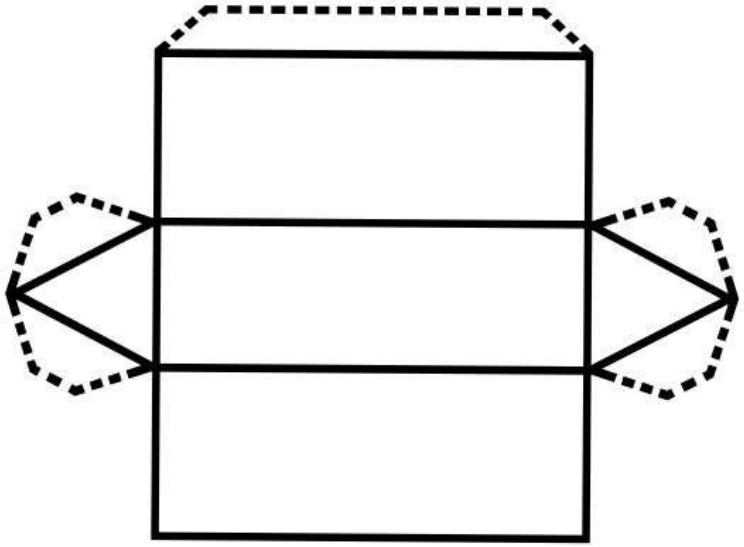

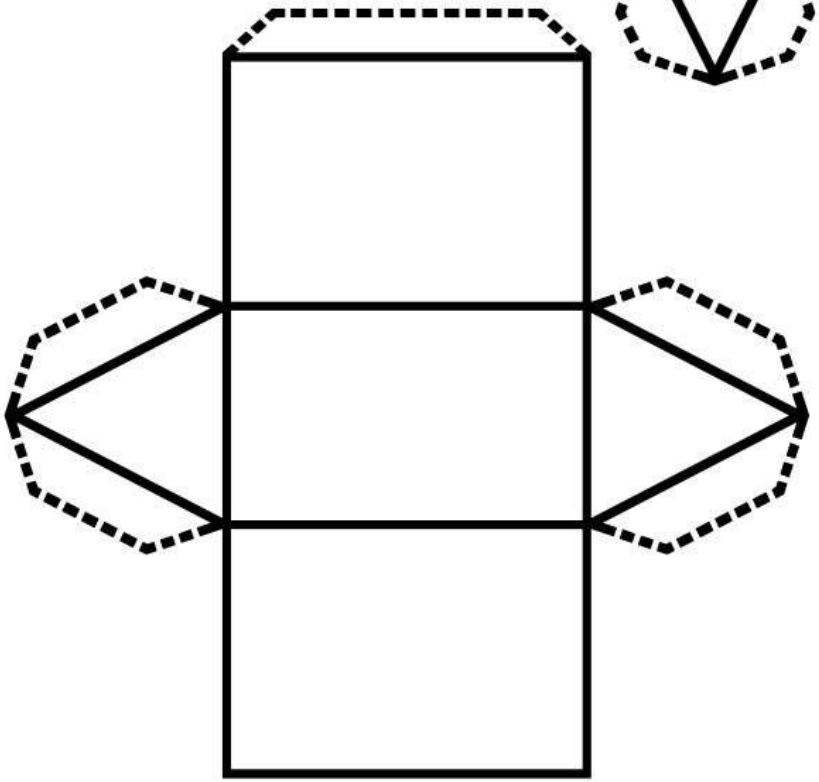

ENGINEER

SELF ASSESSMENT

CIRCLE THE ANSWER THAT FIT YOU BEST DURING THIS PROJECT.

DURING THIS PROJECT...

I did my best work.	needs practice	fair	good	excellent
I focused when I needed to.	needs practice	fair	good	excellent
I felt confident in my abilities.	needs practice	fair	good	excellent
I asked questions that were on task and about the project.	needs practice	fair	good	excellent
I communicated with teachers and students appropriately.	needs practice	fair	good	excellent
I was a complex thinker and tried to solve problems.	needs practice	fair	good	excellent
I used resources to help me.	needs practice	fair	good	excellent