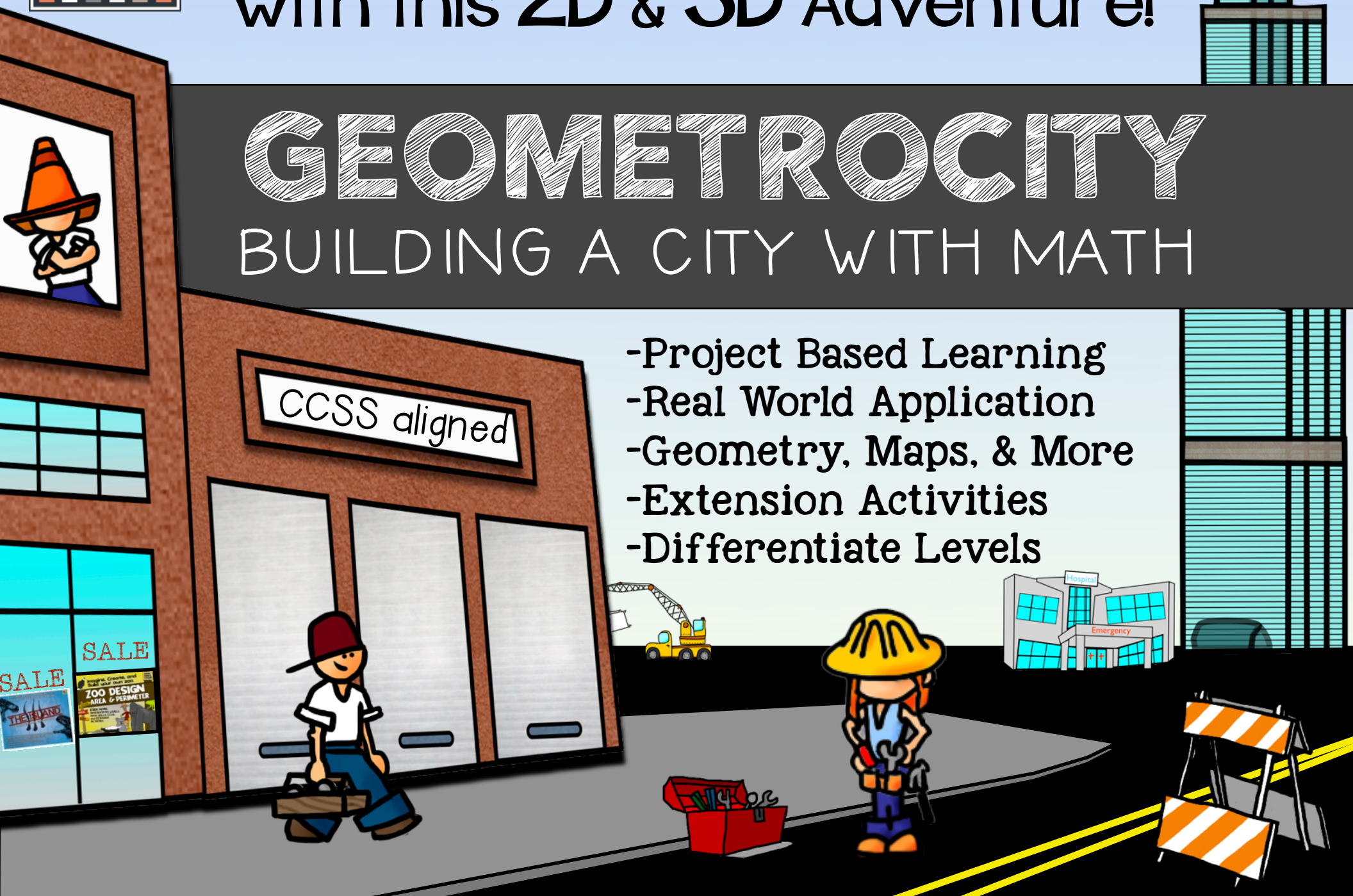
DIGITAL: Divide & Conquer

Imagine, Design, and Build a City with this 2D & 3D Adventure!

GEOMETROCITY

BUILDING A CITY WITH MATH



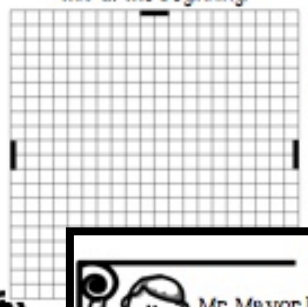
- -Project Based Learning
- -Real World Application
- -Geometry, Maps, & More
- -Extension Activities
- -Differentiate Levels

PHASE TWO: DESIGN & BUILD

On the next few pages you'll build your city using these sections:

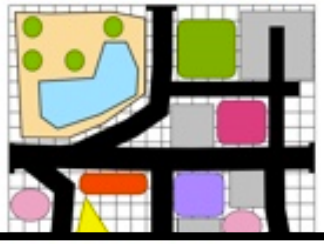
- Downtown
- Suburbs
- City Hall
- Industrial Park
- Public Works
- Business District
- City Living
- Entertainment
- Park District

Each section looks like this at the beginning.



Your job is to fill this section using the listed requirements and your creativity to build Geometrocity.

You get to make it look like this.



GEOMETROCITY: A City Made of Math

Mapping Skills

Over the next four pages you will see different types of maps. One was created a long time ago, while the others were made more recently. Look closely and discuss with your classmates and teacher some of the differences and similarities between them.

Use these questions to drive the discussion:

- How is each map different from the others?
- How is each map the same as all the others?
- What is each map focusing on? How do you know?
- Which is more appealing to you? Why?
- What kinds of patterns do you see?

There are also a handful of websites for students to use to improve mapping skills:

Building Schedule

This project will be broken up into THREE phases.

PERMITS, DESIGN, & CONSTRUCTION

You will need to work through the phases in the order they appear so that you may finish the project correctly. Failure to do so will result in the termination of you contract to build Geometrocity.

PHASE ONE: PERMITS

Mr. Mayor and the City Commissioner have a set of tasks for you to complete to prove you understand geometry enough to build their city. If you pass you'll get the permits to begin building.

Thinking Geometrically: This is 6 pages that review almost all thing geometry.

PHASE TWO: DESIGN & BUILD

You and your team begin building the city. There are nine different sections of the city. In each section are rules and requirements you must follow. Before you begin Phase Two you will read a tutorial to assist you.

PHASE
It's time
Cutting,
*All the
to merg

PHASE ONE: PERMITS

Mr. Mayor has asked that you pass a geometry quiz before you begin building. He wants to make sure you're qualified to build his city.

DIRECTIONS:

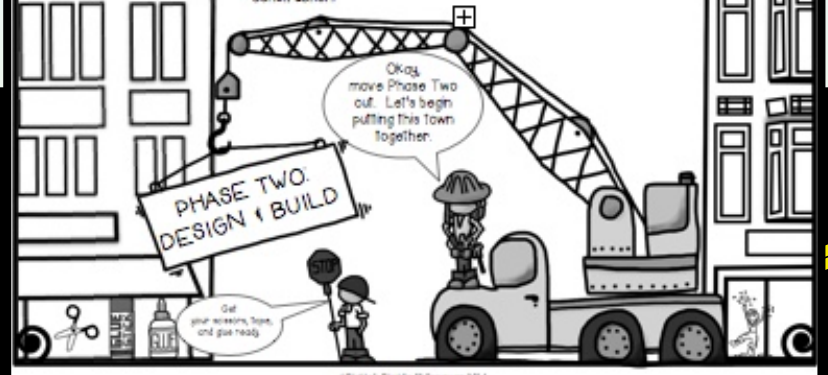
On the building below identify **10** geometric terms that you see and write them in the blanks. Draw a line and circle or outline to prove your answer.

PHASE THREE: CONSTRUCTION

Phase Two is complete! Great work—but you're not finished. It's time for Phase Three, the construction of Geometrocity!

You will cut out the sections of the city and piece them all together.

The amount of sections you have depends on how much you've finished. On the next page there is a tutorial for your construction.

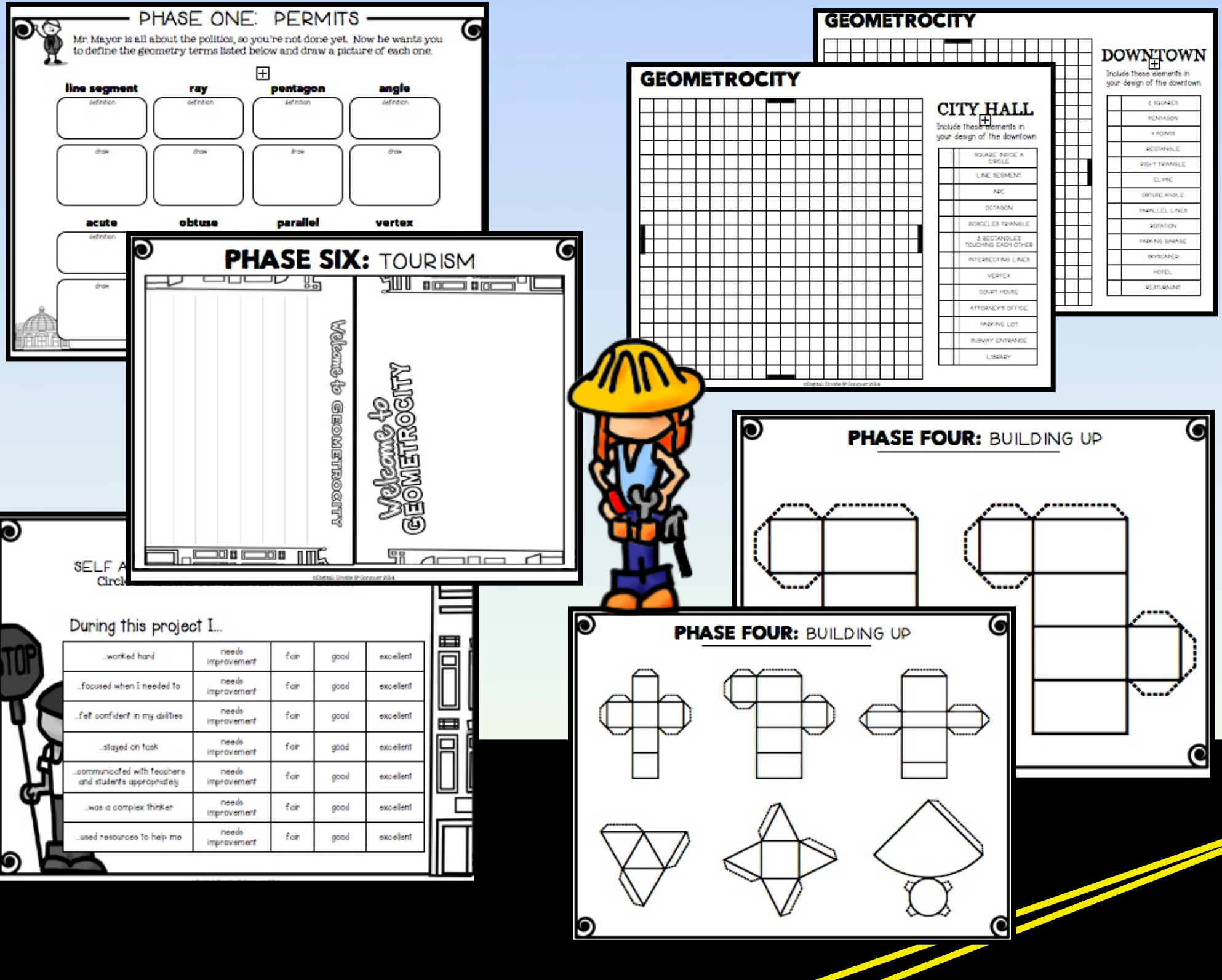


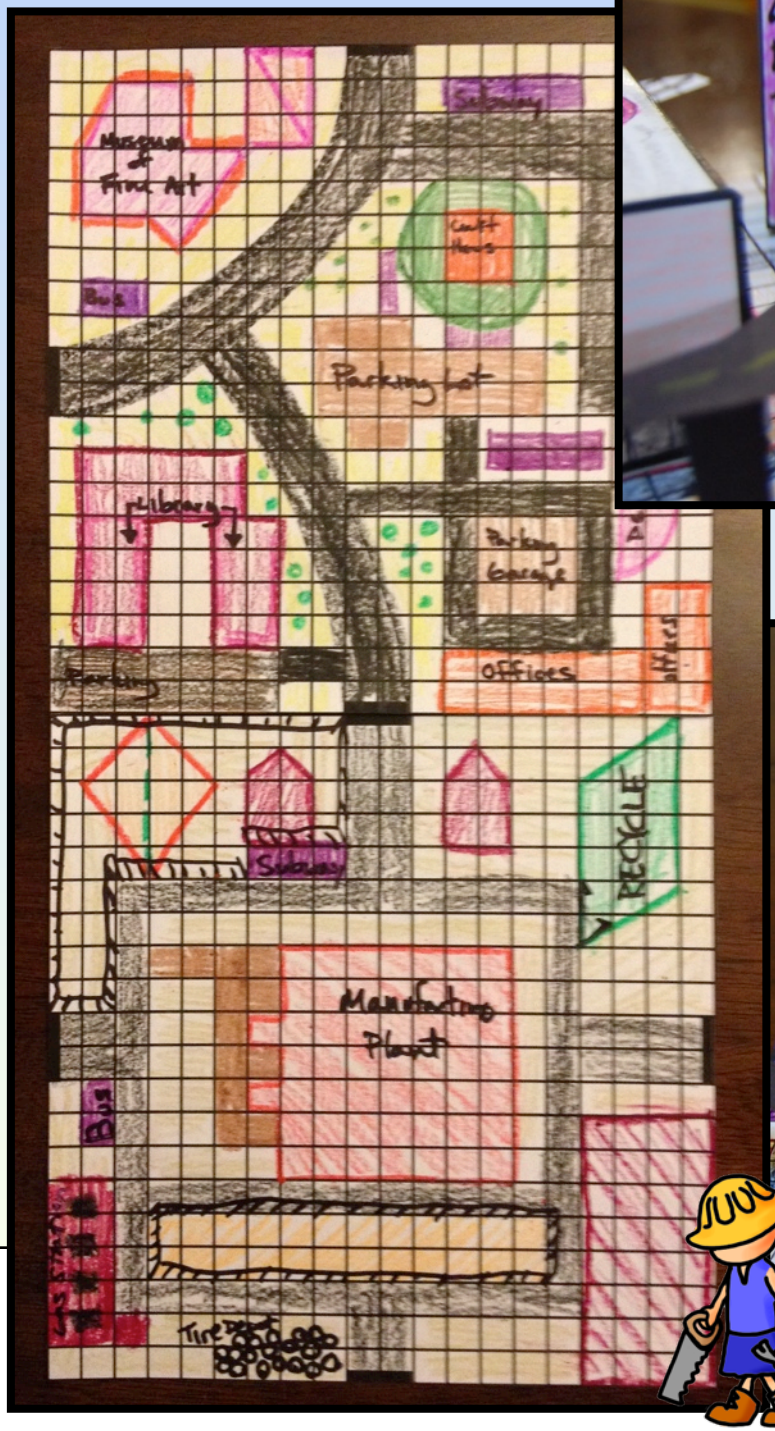
PHASE THREE: CONSTRUCTION

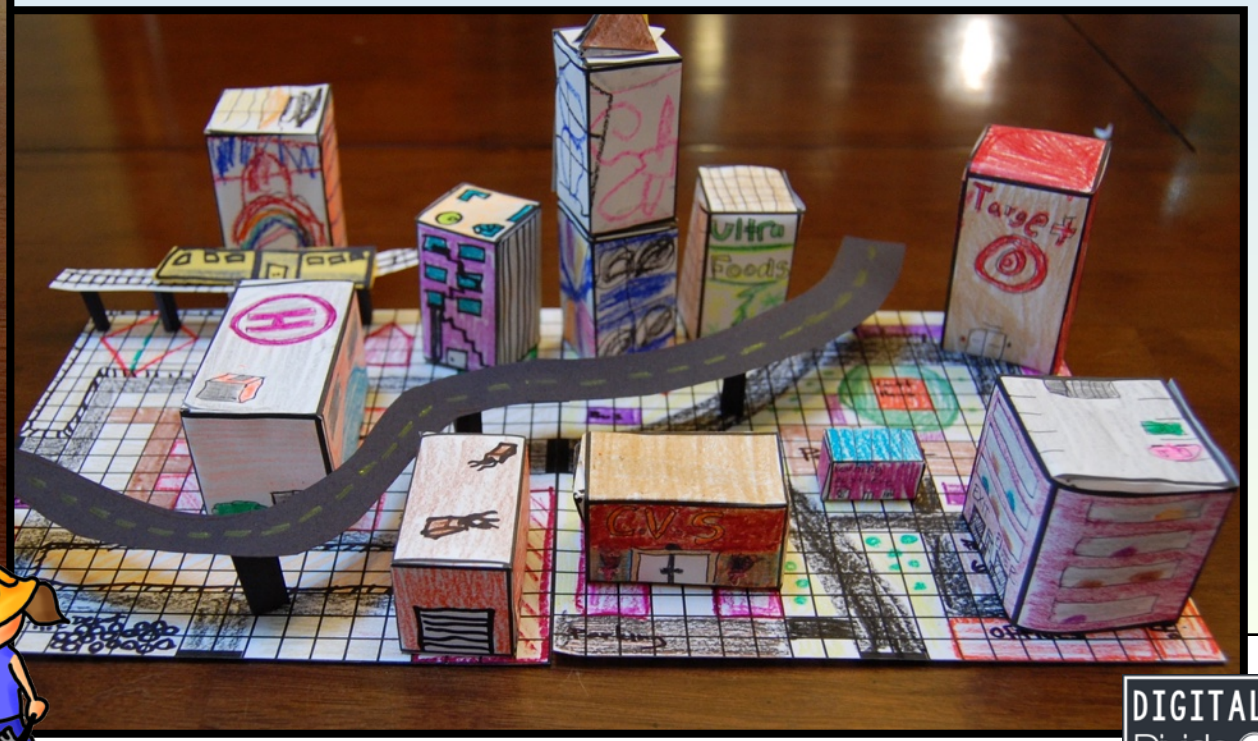
YOUR CLASSMATE'S CITY

Great ideas are everywhere. Take a few minutes and look at what your classmates have created. There are tons of great ideas being generated.

List SIX things that you like from all of your classmate's cities and write them in the blanks below. Write a sentence, jot down a note, or draw a picture with labels. Just write what you like.

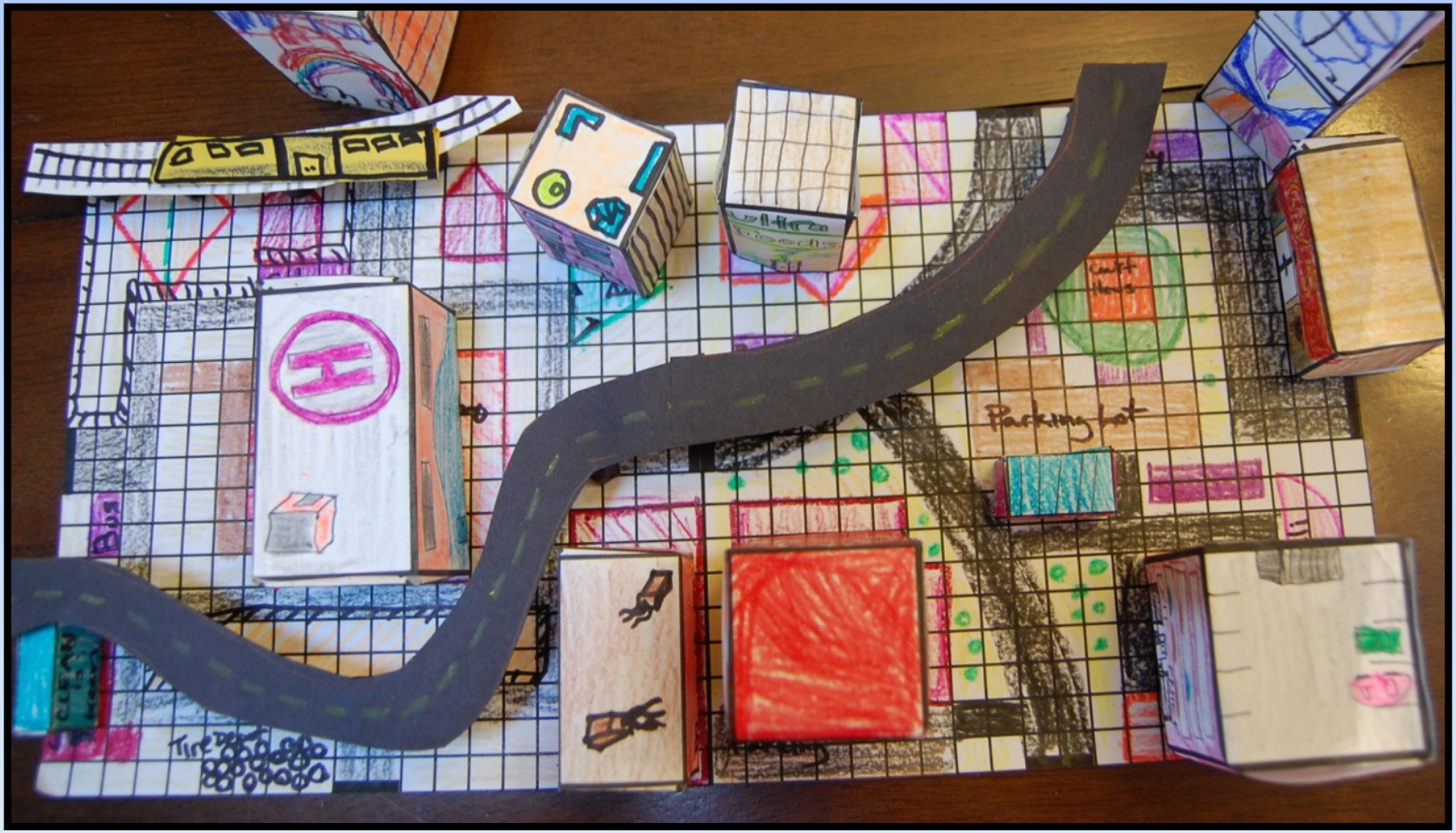

PHASE ONE: PERMITS
Mr. Mayor is all about the politics, so you're not done yet. Now he wants you to define the geometry terms listed below and draw a picture of each one.
line segment
ray
pentagon
angle
definition
draw
acute
obtuse
parallel
vertex
GEOMETROCITY
DOWNTOWN
Include these elements in your design of the downtown.
2 SQUARES
PENTAGON
4 POINTS
RECTANGLE
RIGHT TRIANGLE
ELIPSE
OBTUSE ANGLE
PARALLEL LINES
ROTATION
PARKING GARAGE
SKYSCAPER
HOTEL
RESTAURANT
GEOMETROCITY
CITY HALL
Include these elements in your design of the downtown.
SQUARE INSIDE A CIRCLE
LINE SEGMENT
ARC
OCTAGON
REULEAUX TRIANGLE
3 RECTANGLES TOUCHING EACH OTHER
INTERSECTING LINES
VERTEX
COURT HOUSE
ATTORNEYS OFFICE
PARKING LOT
SUBWAY ENTRANCE
LIBRARY
PHASE SIX: TOURISM
Welcome to GEOMETROCITY
Welcome to GEOMETROCITY
©Digital Divide & Conquer 2014
PHASE FOUR: BUILDING UP
PHASE FOUR: BUILDING UP
SELF A
Circl
During this project I...
..worked hard
..focused when I needed to
..felt confident in my abilities
..stayed on task
..communicated with teachers and students appropriately
..was a complex thinker
..used resources to help me
needs improvement
fair
good
excellent
STOP

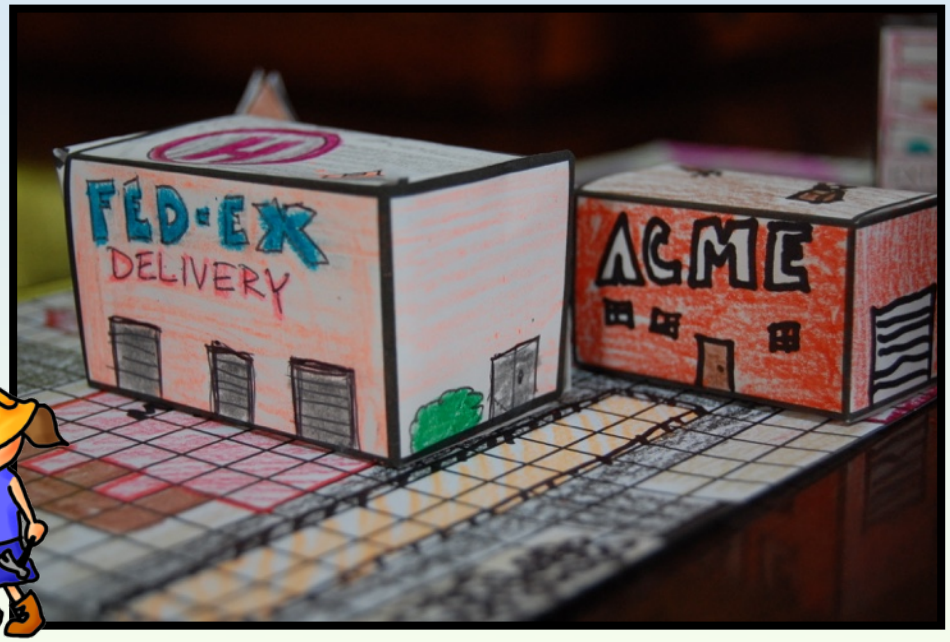




DIGITAL: Divide & Conquer

DIGITAL:
Divide & Conquer





GEOMETROCITY: A City Made of Math

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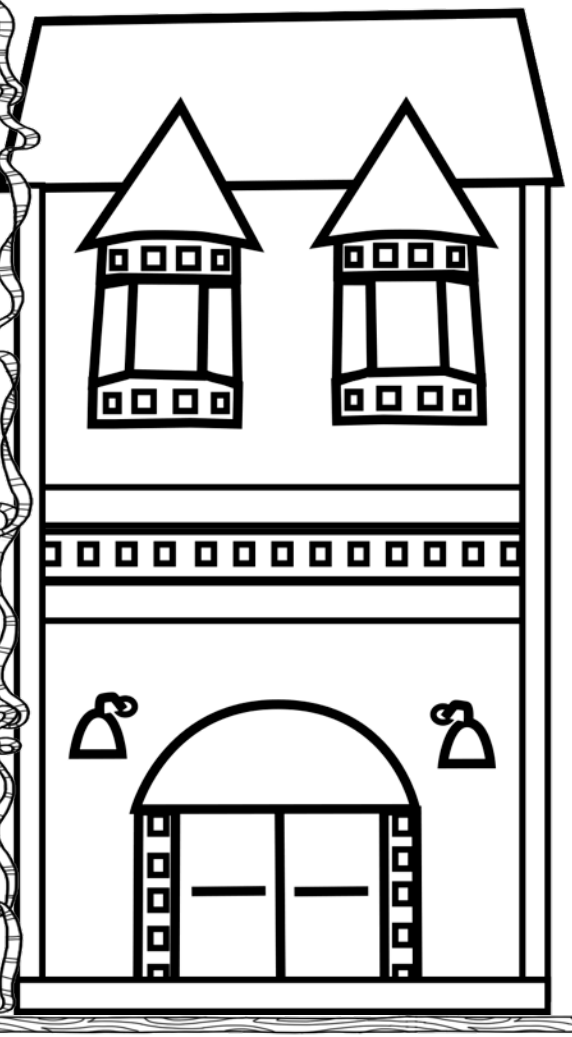
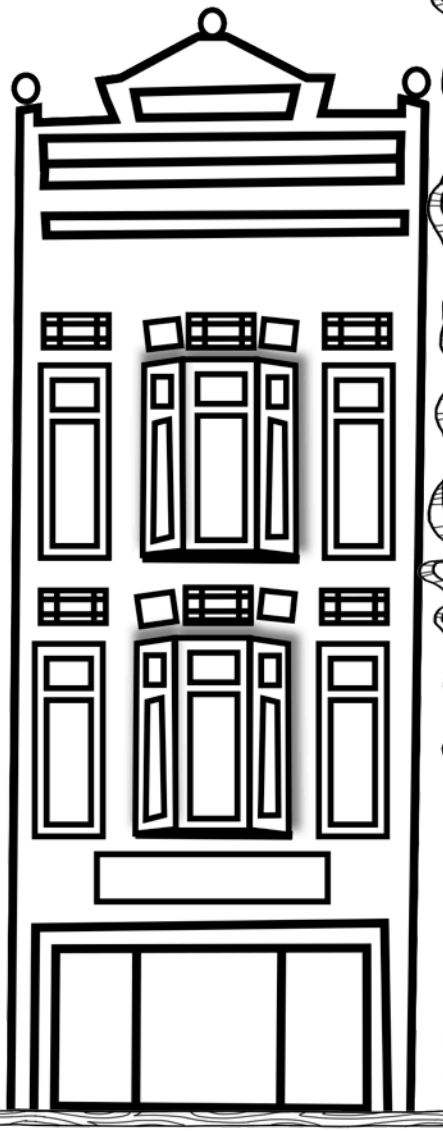




About this Project

Geometrocity is a project based learning activity where students will take their geometry skills and design their own city. This multi-tiered activity allows for immediate differentiation because of it's size, and students may complete parts or the entire project based on your choosing. This project doesn't just focus on math skills, as there are components of social studies (mapping skills), writing, problem solving and comprehension skills too.

Students will be creating a city that uses 2D and 3D, practicing both plane and solid geometry. Students will utlize many types of geometric skills such as building nets to create buildings and structures along with designing parts of a city with shapes, lines, angles, and more.

Geometrocity is broken into SEVEN phases.
Those phases are:

Phase One: Permits

-Reviewing and previewing geometric terms and visuals. Creating a mini-map.

Phase Two: Design & Build

-Up to nine city sections can be built. Each page has 10-14 requirements that must be completed.

Phase Three: Construction

-Putting our city together for the world to see.

Phase Four: Building Up

-Using nets and 3D to make the city rise above the paper.

Phase Five: Assessment

-Three types of self-assessments for students. Self, Individual, and group work.

Phase Six: Tourism

-Create a postcard to persuade visitors to come.

Phase Seven: Challenge

-5 extra higher level challenges for students that want to create more.

This project aims to focus on geometry, but there are so many other elements of learning present which include problem-solving, making inferences, collaboration, communication, independent learning, and more.

Tips & Ideas:

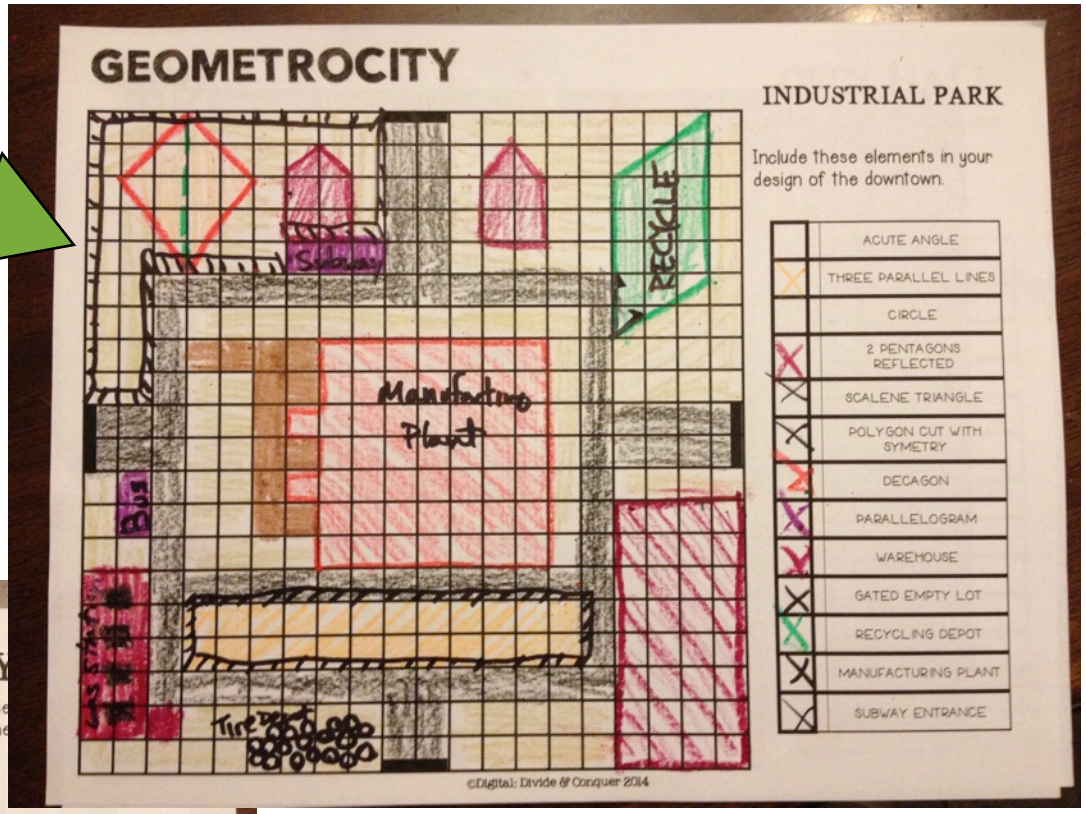
- This project can be done individually or within a group. It is up to teacher discretion. Teachers can assign this for individuals or as a group project with each participant taking sections and they work together to build a city.
- In my classroom, I will project files like this on our whiteboards so that students and teachers can discuss the instructions and objectives.
- Included at the beginning of this file are some pages filled with different types of maps. Use these as an opportunity to show the differences.
- I've included a set of images giving examples of different phases of the project.
- As student begin to construct their city they may want to add cardboard underneath their paper for increased stability.

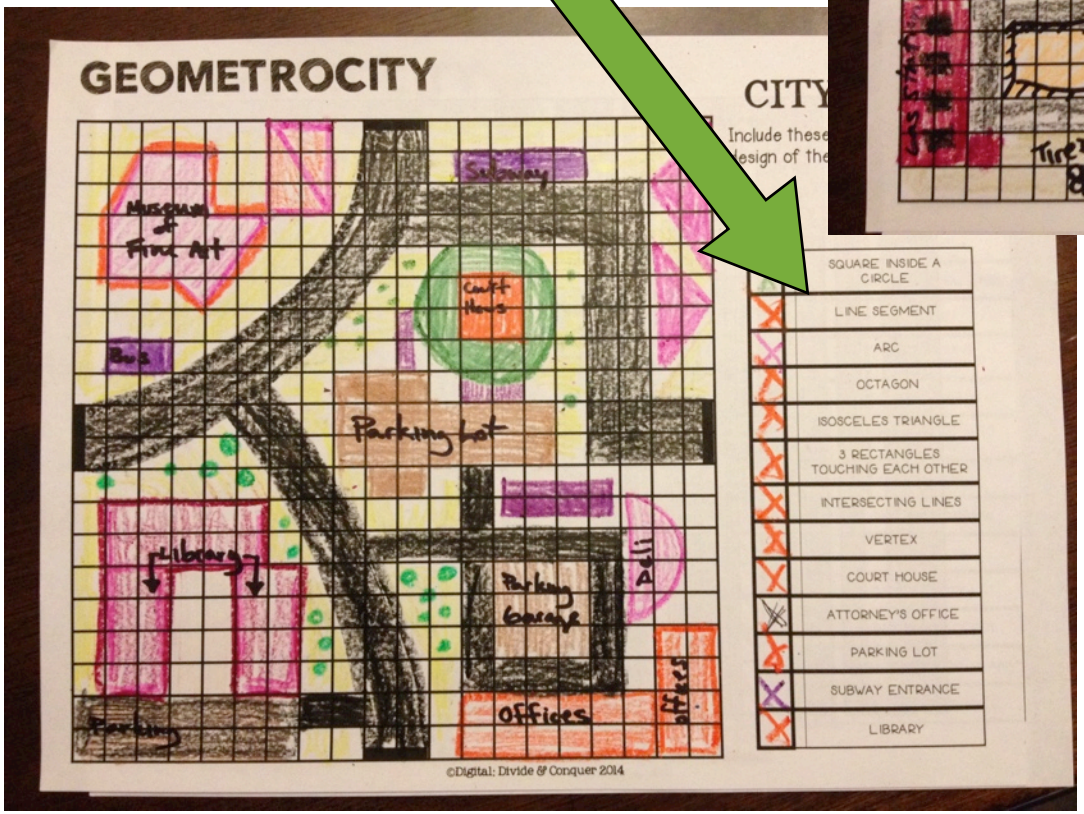
MATH Common Core Standards
CCSS.MATH.CONTENT.3.G.A.1
CCSS.MATH.CONTENT.3.G.A.2
CCSS.MATH.CONTENT.4.G.A.1
CCSS.MATH.CONTENT.4.G.A.2
CCSS.MATH.CONTENT.4.G.A.3
CCSS.MATH.CONTENT.5.G.B.3
CCSS.MATH.CONTENT.5.G.B.4
CCSS.MATH.CONTENT.6.G.A.4

GEOMETROCITY: A City Made of Math

During the design phase, students will create the city on sections that look like this.

As long as users follow the checklist on the right side of the page they, may design it however they would like.





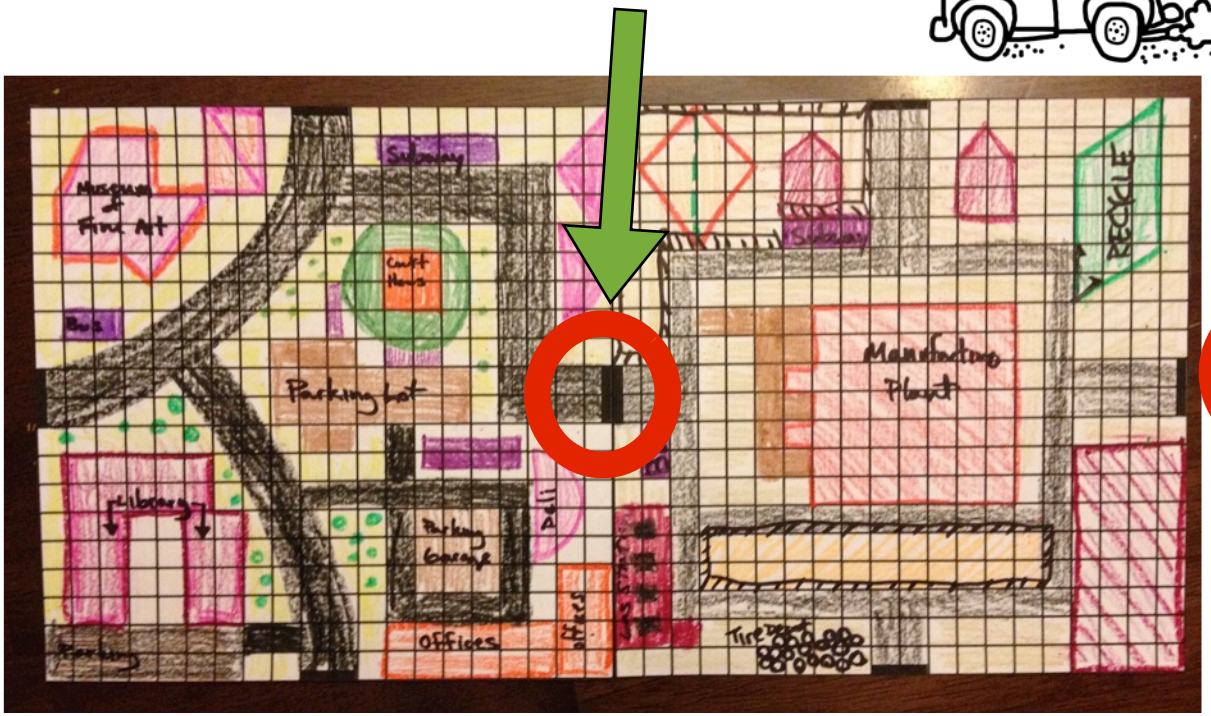
Labeling, coloring, and details are extremely important. The more you have the better your city will look.

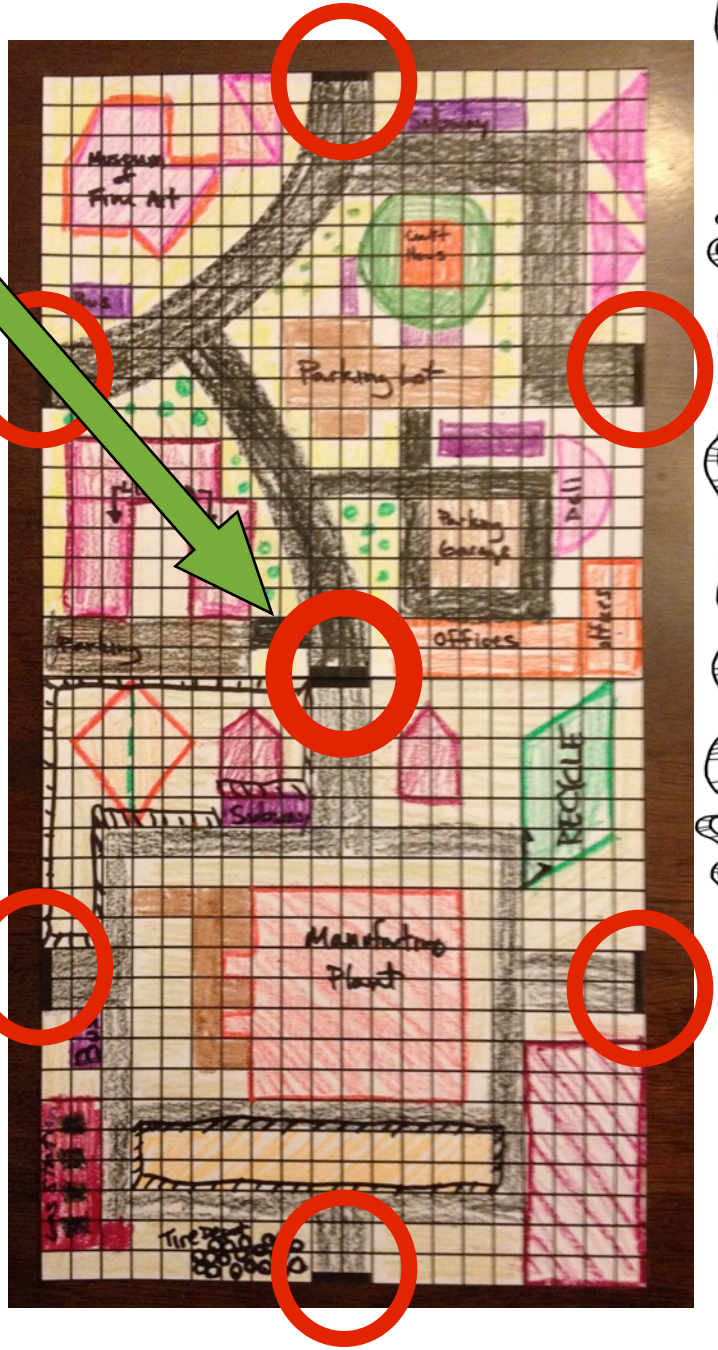
Try and use as many geometry elements as you build each section.

GEOMETROCITY: A City Made of Math

These finished sections of PHASE TWO have been cut out. Notice how they can match up anyway because the roads match up.

It is important to always have roads at each point. That way you can move your city around or you can match it up with a classmates.

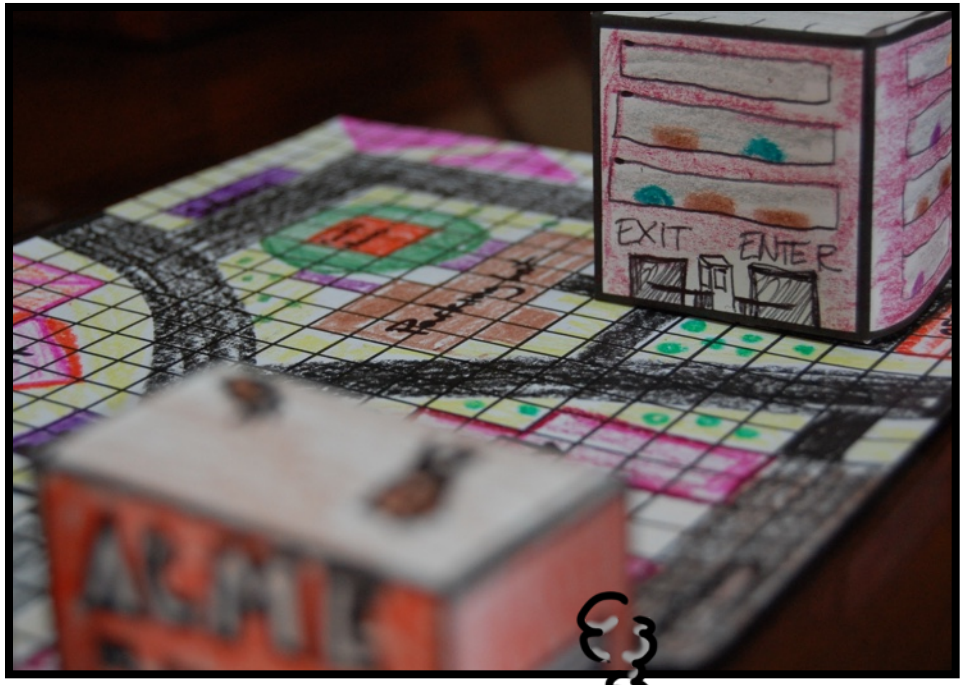


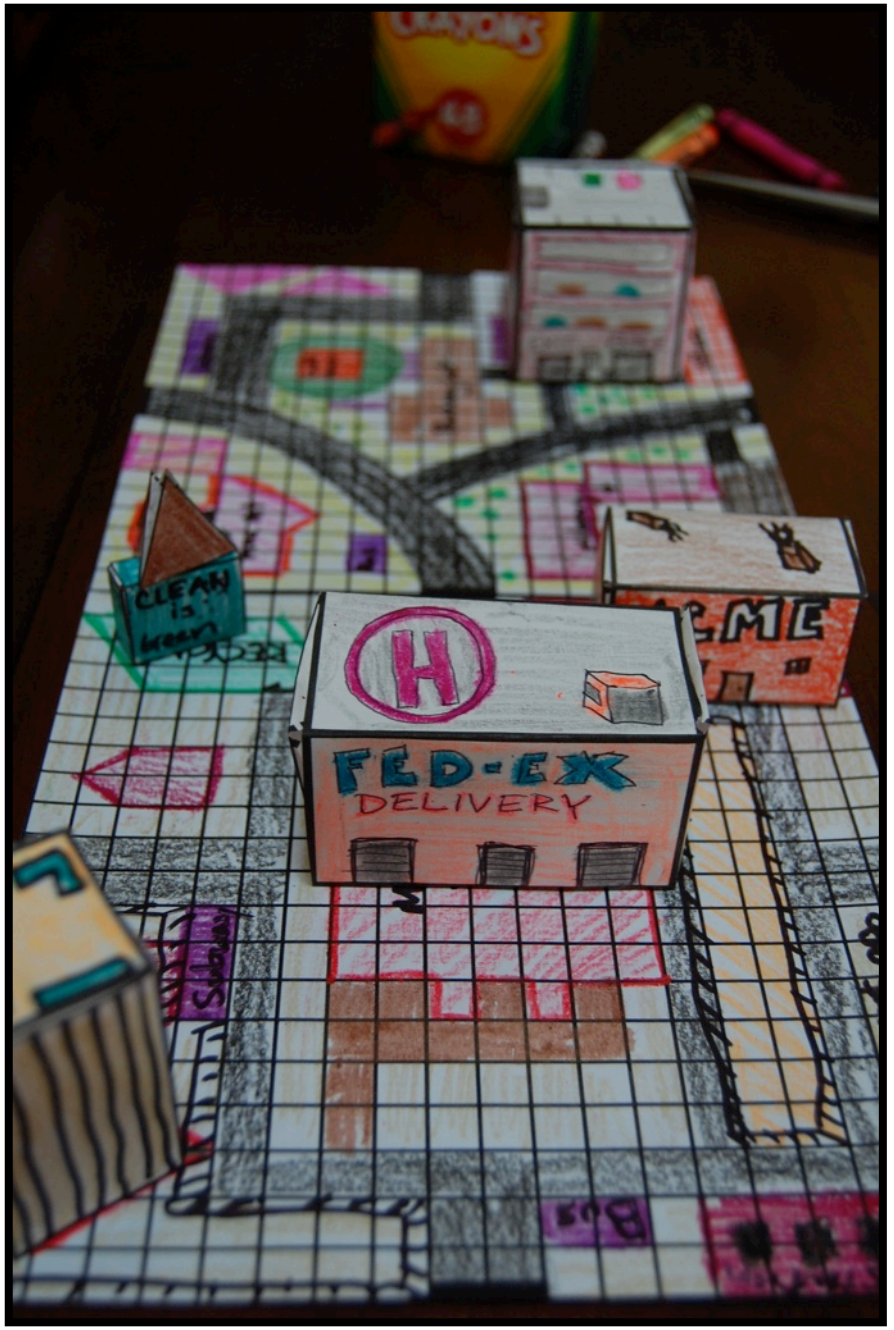


GEOMETROCITY: A City Made of Math

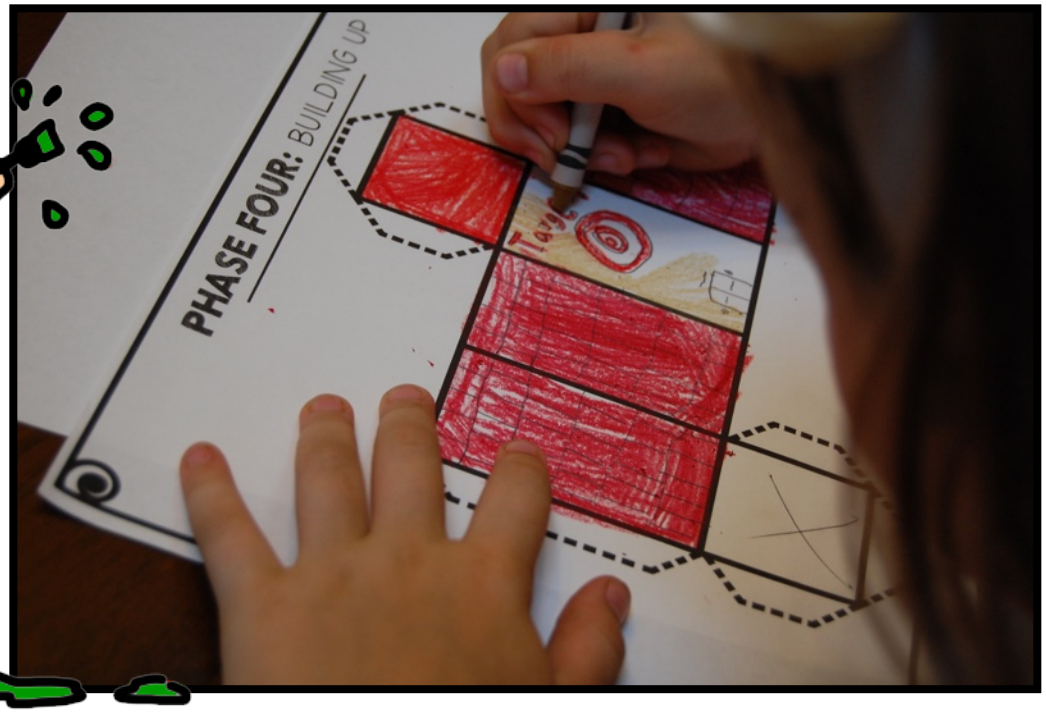
Here's a look at some of the finished nets that have turned the city into a 3D city from PHASE THREE: Building Up.

There are multiple net sizes to choose from that are small to large. Don't forget that they can be added to another one too.



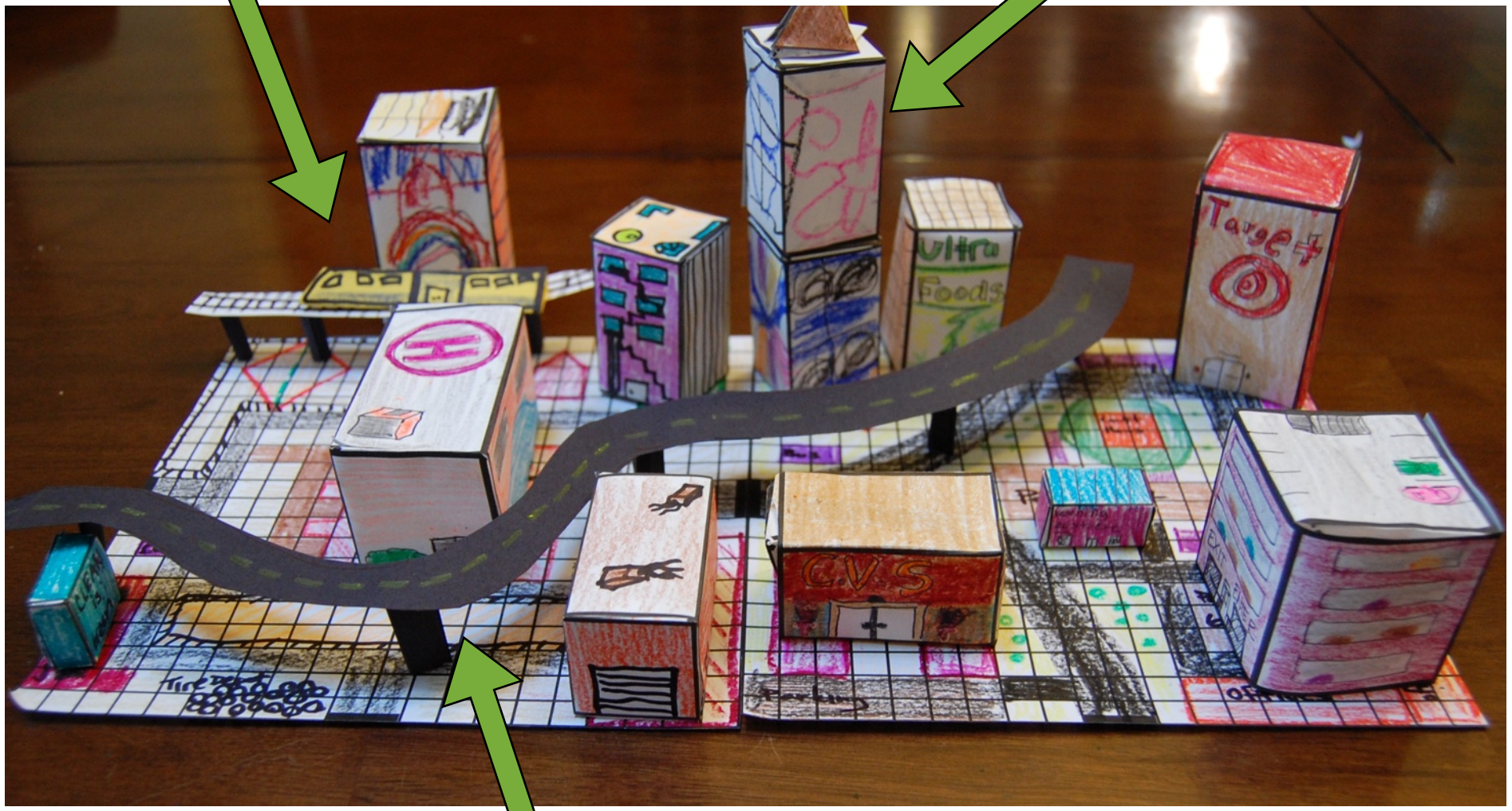


GEOMETROCITY: A City Made of Math



GEOMETROCITY: A City Made of Math

PHASE SEVEN: CHALLENGE



Mapping Skills

Over the next four pages, you will see different types of maps.
One was created a long time ago, while the others were made more recently. Look closely and discuss with your classmates and teacher some of the differences and similarities between them.

Use these questions to drive the discussion:

- How is each map different from the others?
- How is each map the same as all the others?
- What is each map focusing on? How do you know?
- Which is more appealing to you? Why?
- What kinds of patterns do you see?

There are also a handful of websites for students to use to improve mapping skills:

- Social studies maps: http://classroom.jc-schools.net/basic/ssmaps.html
- National Geographic: http://education.nationalgeographic.com/education/mapping/kd/?ar>a=5
- World maps: http://www.yourchildlearns.com/map-

GEOMETROCITY: Mapping Skills

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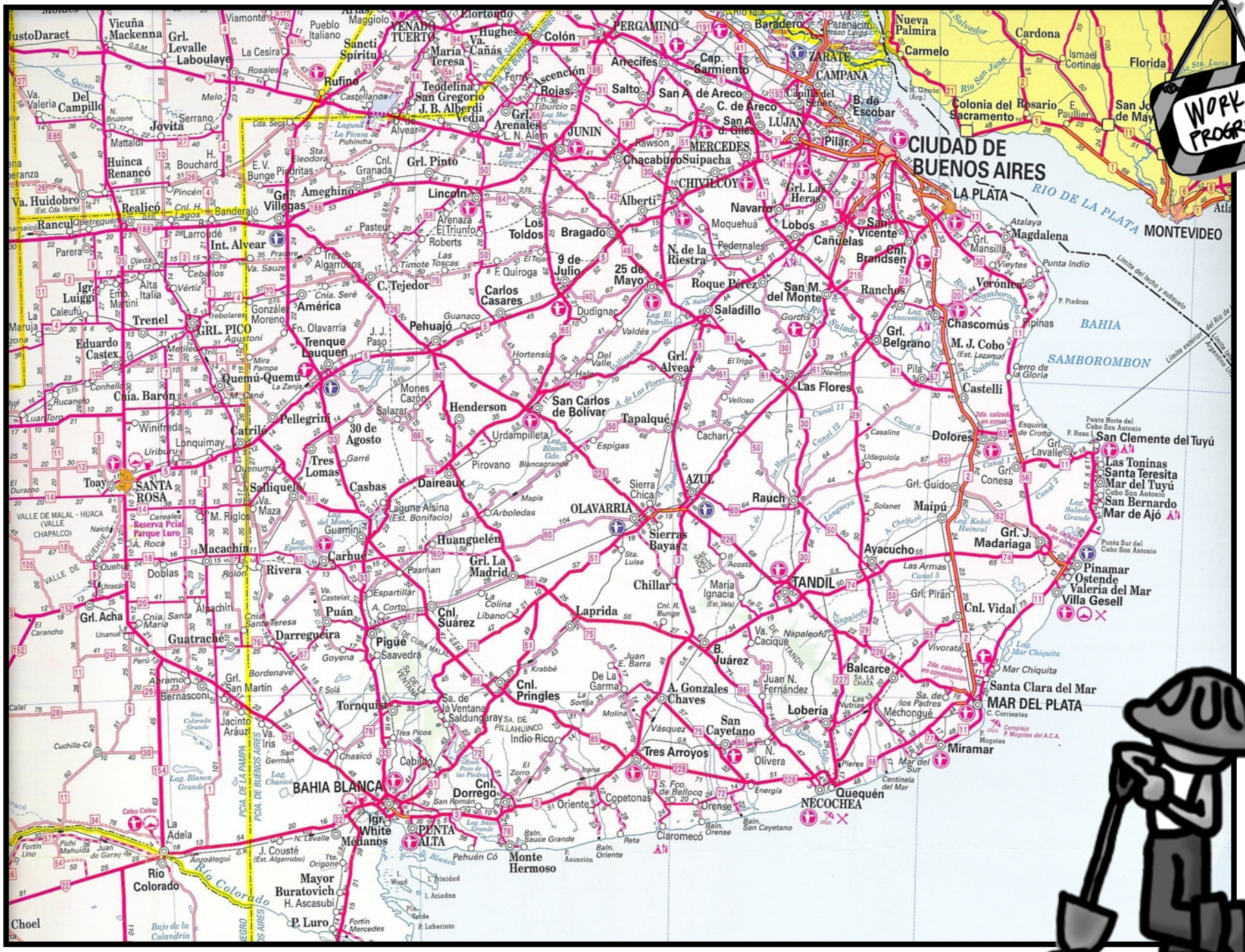
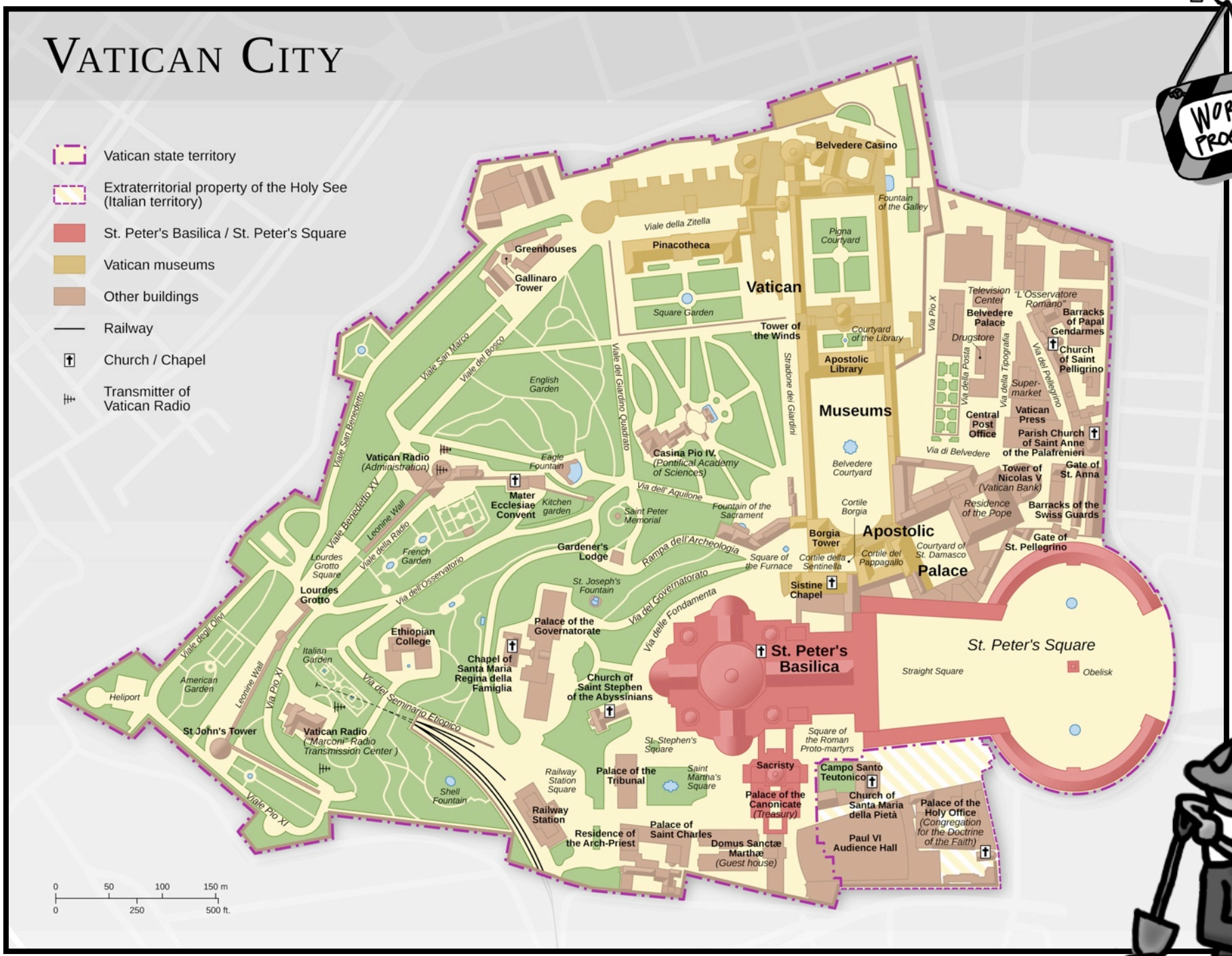


GEOMETROCITY: Mapping Skills



GEOMETROCITY: Mapping Skills

GEOMETROCITY: A City Made of Math

The objective of this project is to create a city from scratch by using learned geometry skills and concepts such as:

- Plane Geometry
- Solid Geometry
- Polygon
- Angles
- Symbols
- Coordinates
- Area & Perimeter
- 2D Shapes
- 3D Shapes
- Transformations
- And More

**This project can be completed independently or as a group (your teacher will make that decision).

You are encouraged to be CREATIVE and use your IMAGINATION with this city. Use your classmates, the Internet, and other resources to make sound decisions. Look at maps, pictures, videos, and collaborate with others to build your ideal city.

As you move through this project there will be certain requirements that must be met, too, but they will be stated clearly for you to see.

Many of the math concepts are used daily in real-world situations such as architecture and design. It is important you recognize the real-world applications of lessons learned in school.

You'll be demonstrating your skills within geometry to create a city made of math, Geometrocity.

GEOMETROCITY

To:(your name here)
From: City Council of Geometrocity

Congratulations! You have been chosen to design a new city for us. There were thousands of applicants, but we chose you! We think that your knowledge and skills are just what is needed to create this new city.

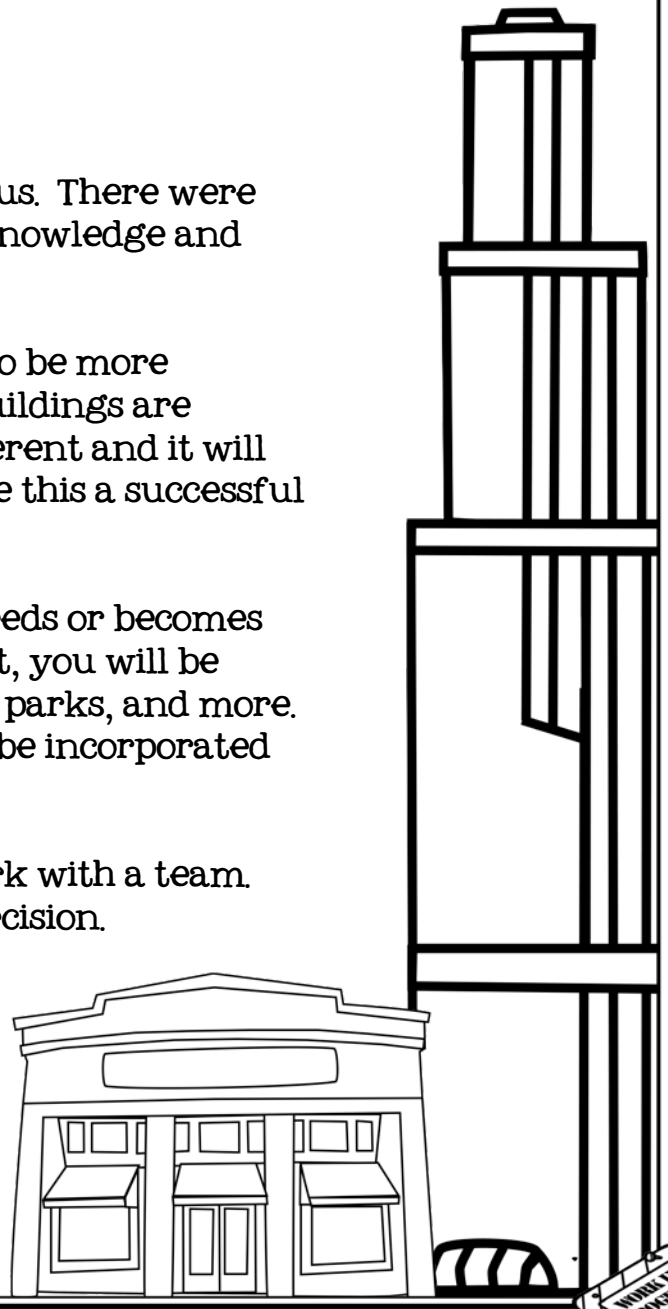
Your job is to create a city filled with math concepts: geometry, to be more specific. Many people don't know this but all cities, towns, and buildings are created with math skills as a foundation. This city will be no different and it will be important for you to showcase your geometrical skills to make this a successful place.

You are the architect. You will determine whether this city succeeds or becomes bogged down in city politics and never develops. As lead architect, you will be tasked with creating city infrastructure such as buildings, roads, parks, and more. Along the way, you will have specific design elements that must be incorporated with each portion of the city.

This entire project can be completed individually or you may work with a team. The city council feels comfortable that you'll make the correct decision.

We look forward to seeing your work.

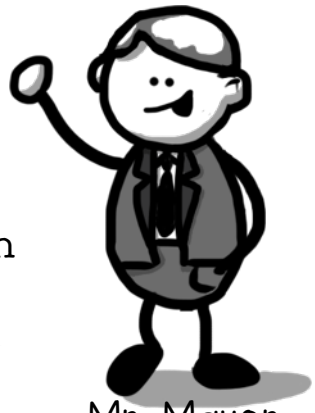
Sincerely,
City Council



GEOMETROCITY

"Welcome to the city that you're going to create!"

"You'll notice that this page is kind of blank, just like our city. Take a couple of minutes and brainstorm words that describe cities. Write them everywhere on this page. I'll begin."



Mr. Mayor

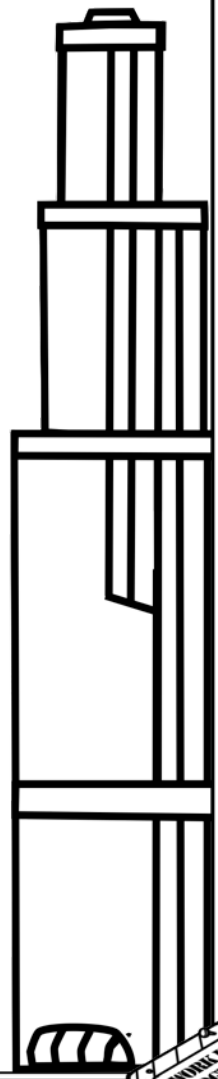
ROADS

electricity

BUILDINGS

condos

workers



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PHASE ONE: PERMITS

Mr. Mayor and the City Commissioner have a set of tasks for you to complete to prove you understand geometry enough to build their city. If you pass you'll get the permits to begin building.

Let's hope you know your geometry.

PHASE TWO: DESIGN & BUILD

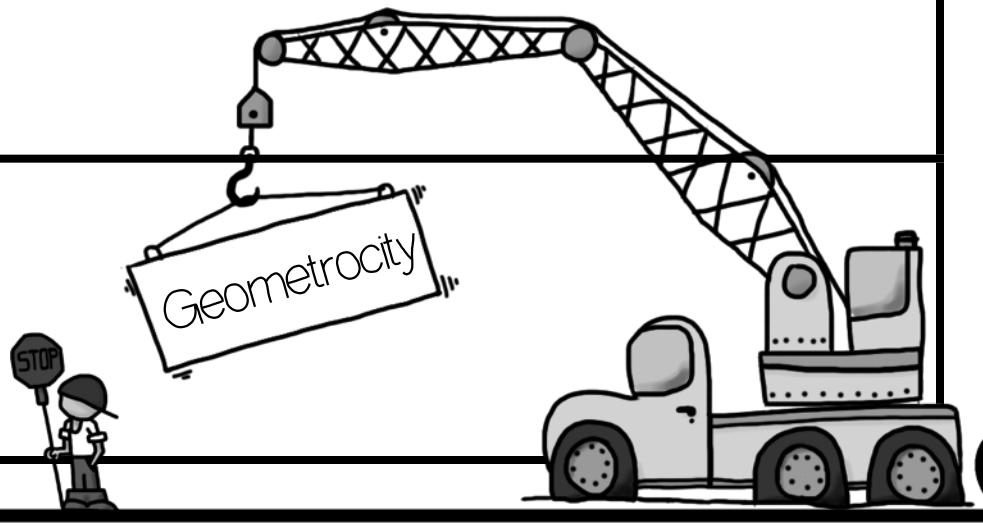
You and your team begin to build the city. There are nine different sections of the city. In each section there are rules and requirements you must follow. Before you begin working on Phase Two you will read a tutorial to assist you.

PHASE THREE: CONSTRUCTION

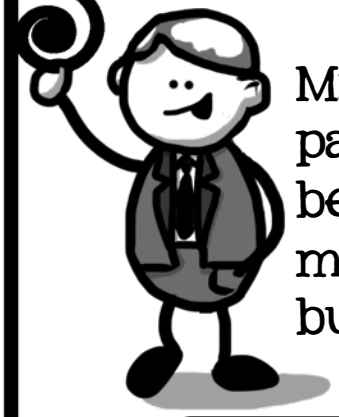
It's time to put your city together.

Cutting, gluing, and assembling is your job.

*All the sections from PHASE TWO will begin and merge together and a city will rise.



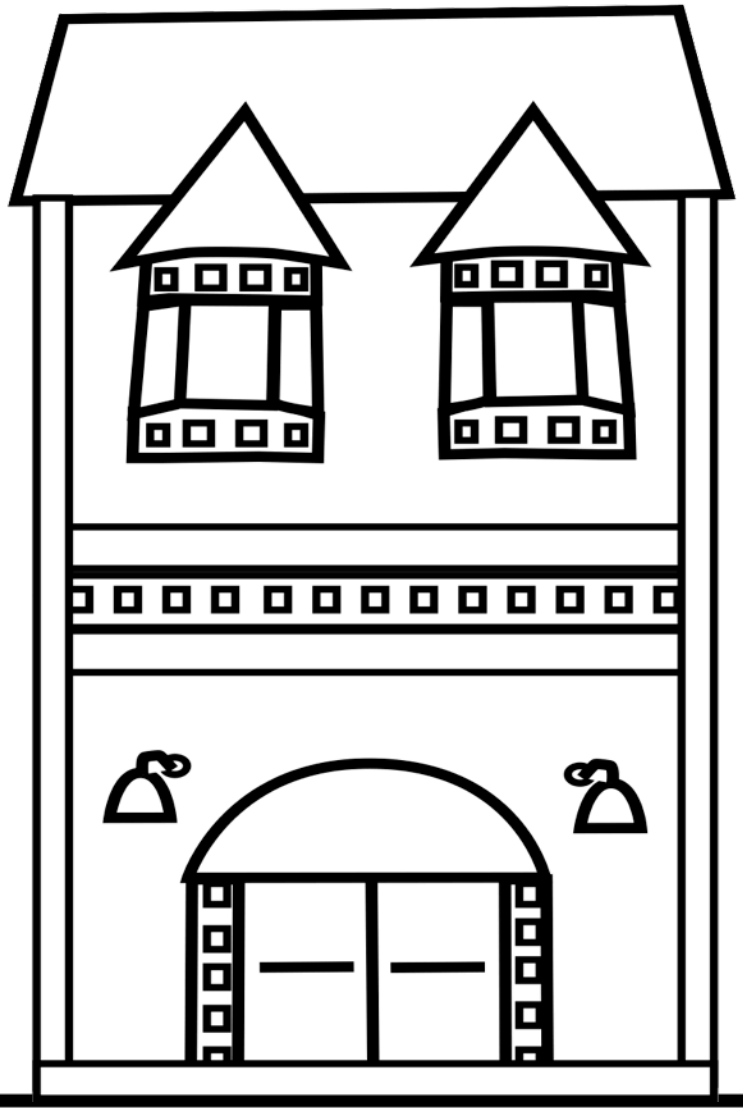
PHASE ONE: PERMITS



Mr. Mayor has asked that you pass a geometry quiz before you begin building. He wants to make sure you're qualified to build his city.

DIRECTIONS:

On the building below identify **10** geometric terms that you see and write them in the blanks. Draw a line and circle or outline to prove your answer.



PHASE ONE: PERMITS

Mr. Mayor is all about the politics, so you're not done yet. Now he wants you to define the geometry terms listed below and draw a picture of each one.

square	vertex	line	hexagon
definition	definition	definition	definition
draw	draw	draw	draw

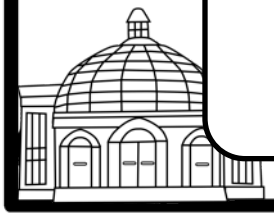
polygon	quadrilateral	area	perimeter
definition	definition	definition	definition
draw	draw	draw	draw

PHASE ONE: PERMITS

Mr. Mayor is all about the politics, so you're not done yet. Now he wants you to define the geometry terms listed below and draw a picture of each one.

line segment	ray	pentagon	angle
definition	definition	definition	definition
draw	draw	draw	draw

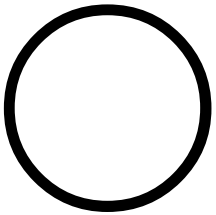
acute	obtuse	parallel	rectangle
definition	definition	definition	definition
draw	draw	draw	draw



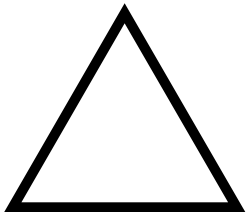
PHASE ONE: PERMITS

WOW!
Nice work! Now the City Commissioner wants to test your skills.

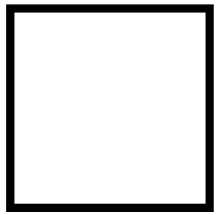
That's right Mr. Mayor!
You've got to pass my tests. I want you to identify each item you see below. Write the names in the blank below each one.



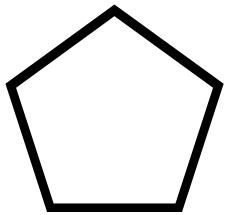
name



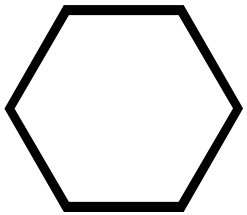
name



name



name



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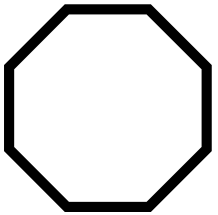

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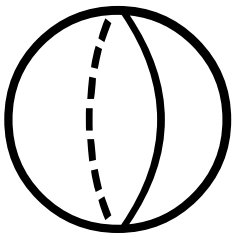

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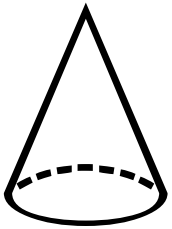

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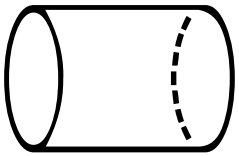

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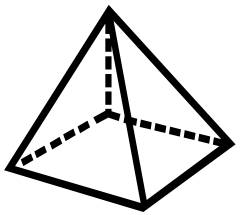

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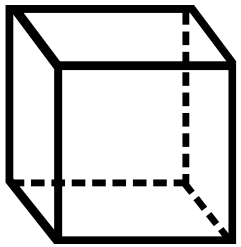

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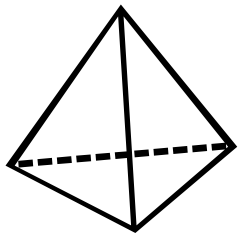
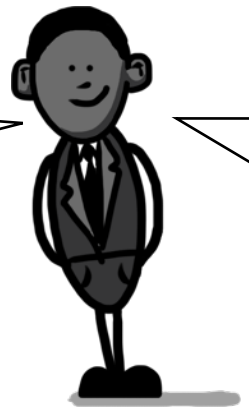


name

PHASE ONE: PERMITS



Your knowledge is impressive.. I've got one last test for you.

I want you to draw a map of your school. That's right! Draw your School!

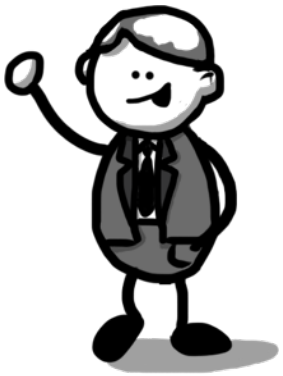
DIRECTIONS:

In the area below draw an overhead (aerial) view of your school. Label the locations on the listed below. You may add as much detail or design elements as you want.

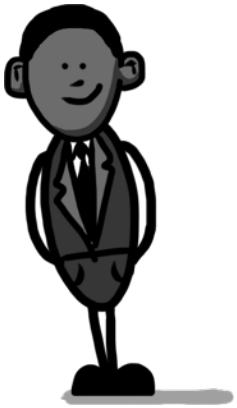
- ☐ PLAYGROUND
- ☐ LIBRARY
- ☐ GYM
- ☐ CLASSROOM
- ☐ OFFICE
- ☐ HALLWAY
- ☐ CAFETERIA
- ☐ YOU PICK

PHASE ONE: PERMITS

Your building permits have been:



☒ APPROVED ☐ DENIED



Congratulations! All permits have been approved and you are ready to begin.

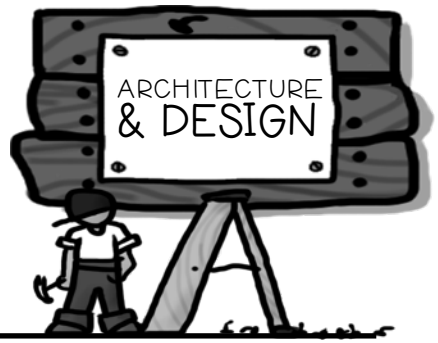
Before you begin working on PHASE TWO: DESIGN take a couple of minutes and think of your top 3 favorite places in the city or town you live in. Then write your choices below AND tell why you like them so much.

1	2	3

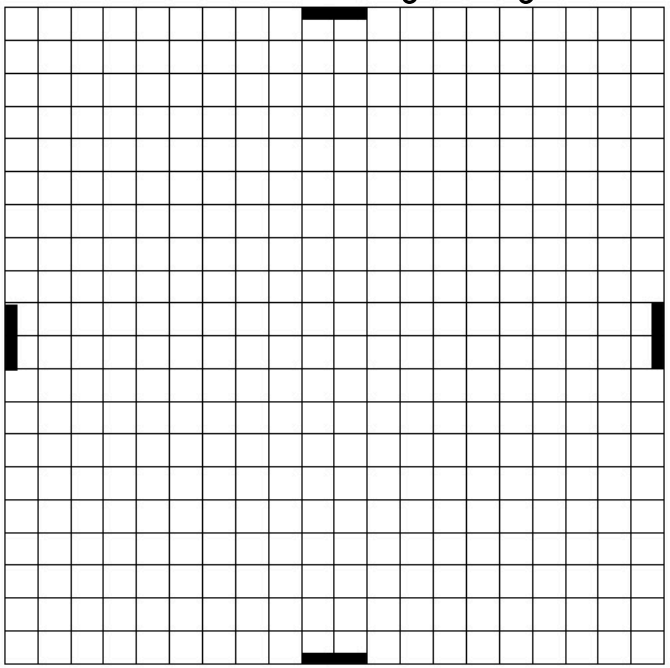
PHASE TWO: DESIGN & BUILD

On the next few pages you'll build your city using these sections:

- Downtown
- Suburbs
- City Hall
- Industrial Park
- Public Works
- Business District
- City Living
- Entertainment
- Park District

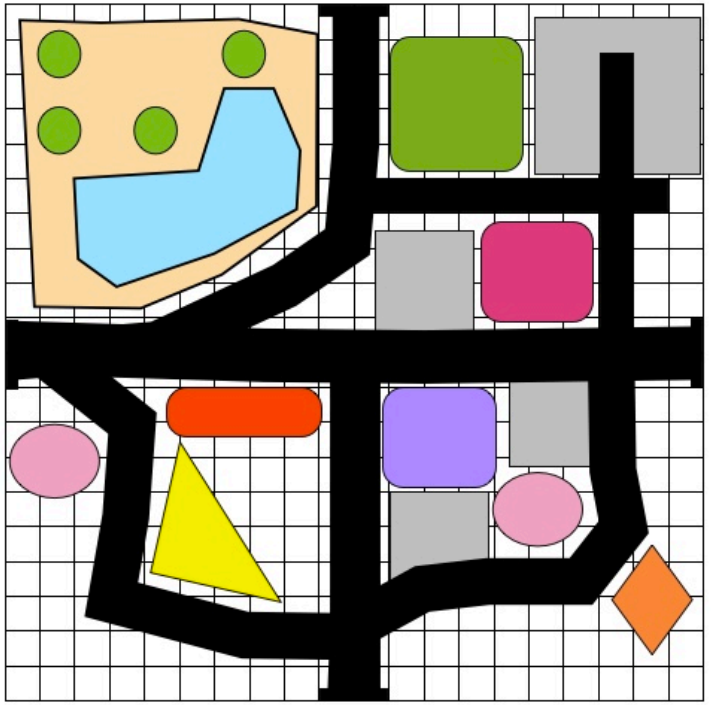


Each section looks like this at the beginning.

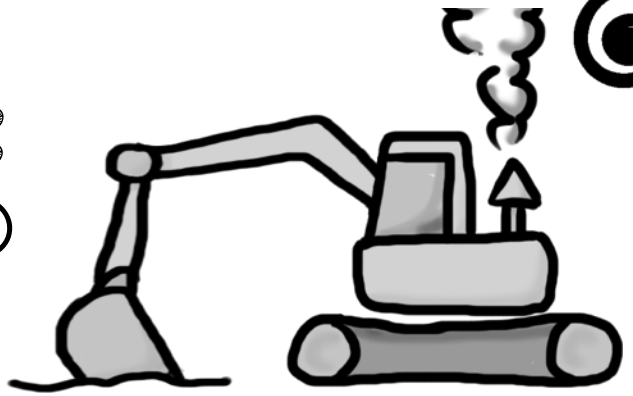


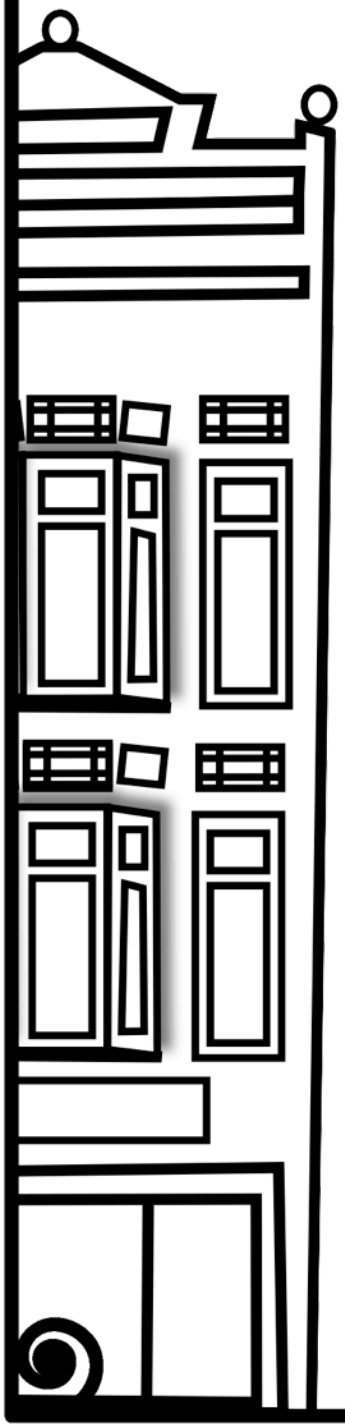
Your job is to fill this section using the listed requirements and your creativity to build Geometrocity.

You get to make it look like this.



PHASE TWO:
DESIGN & BUILD





CHECKLIST

Over the next few pages on the right side of the paper will be a checklist. You must include all of these elements into each of the sections.

You'll notice that the first 7-9 items are geometry and the last few are areas within a city. You may combine some of these elements together if you want.

Check off each one when you complete it to help you stay organized.

You are encouraged to add many more elements to each section to create a thriving city.

	2 SQUARES
	PENTAGON
	4 POINTS
	RECTANGLE
	RIGHT TRIANGLE
X	ELLIPSE
	OBTUSE ANGLE
	PARALLEL LINES
X	ROTATION
X	PARKING GARAGE
	SKYSCRAPER
	HOTEL
	RESTAURANT

LABELING

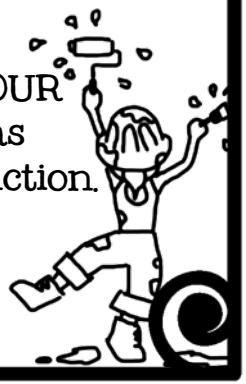
You should label your geometry answers as best as possible through highlighting with markers, colored pencils, pens, or crayons.

Try and make the geometry pop out, but also blend in at the same time. This can be a difficult skill, but with practice you'll accomplish it.

DO TRY and label buildings, roads, parks, and other aspects of the city.

You will have to write neat and small. TAKE YOUR TIME! Make it take just as long as real road construction.

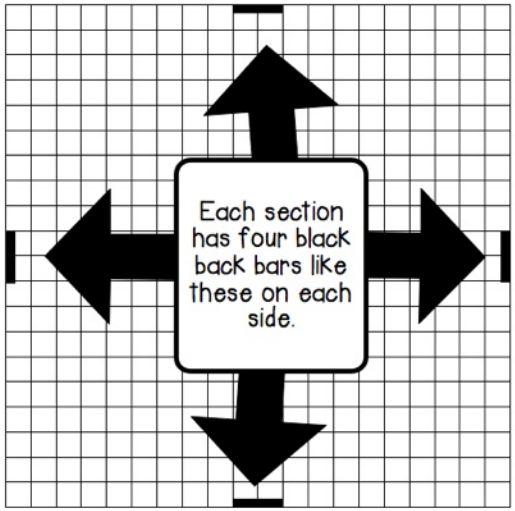
GOOD LUCK!

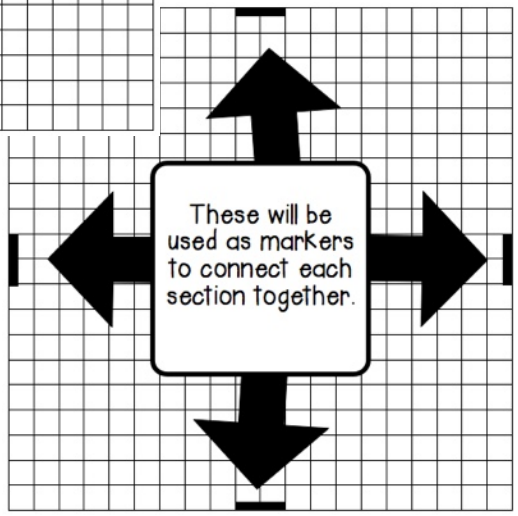


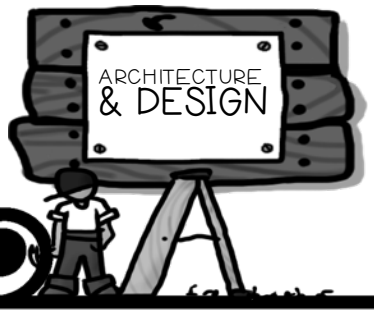
PHASE TWO: DESIGN & BUILD

Each section has four black bars on each side. Look at the images below for reference.

**You MUST have roads coming in and out at each black bar per section. You may add more roads in each inside each section.

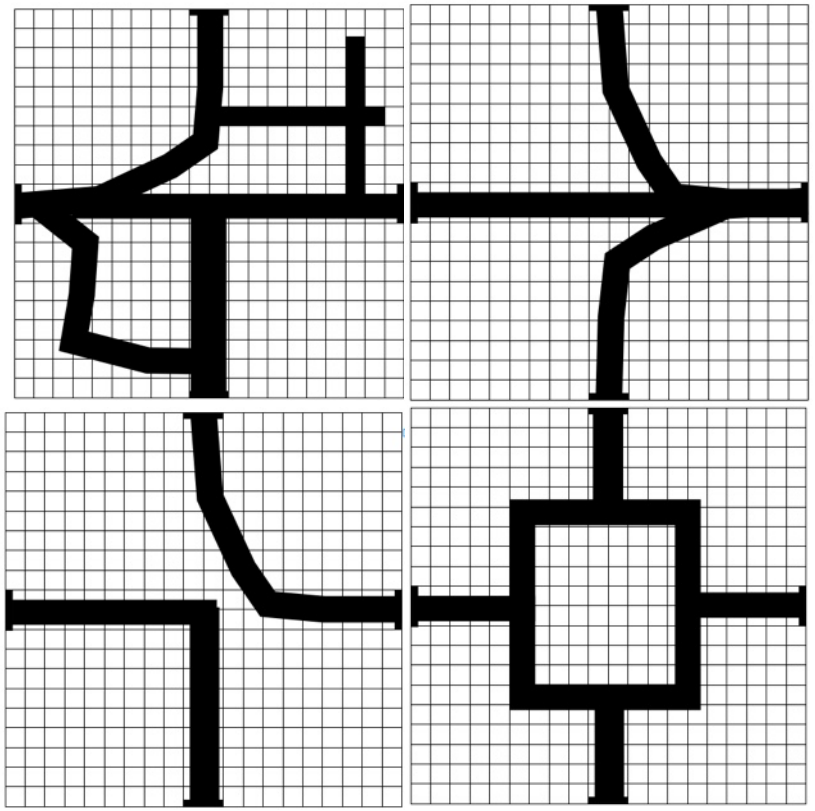






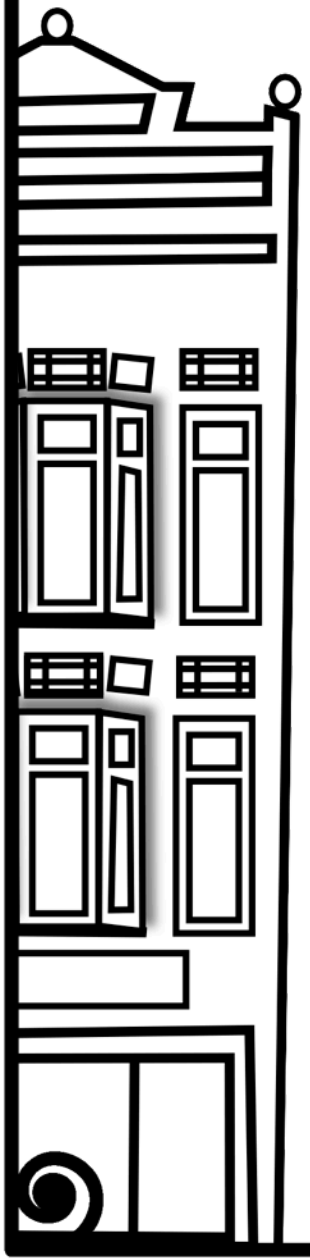
The roads must begin and exit on those spots so you may piece it together when you are all finished.

See how all the roads can connect below.



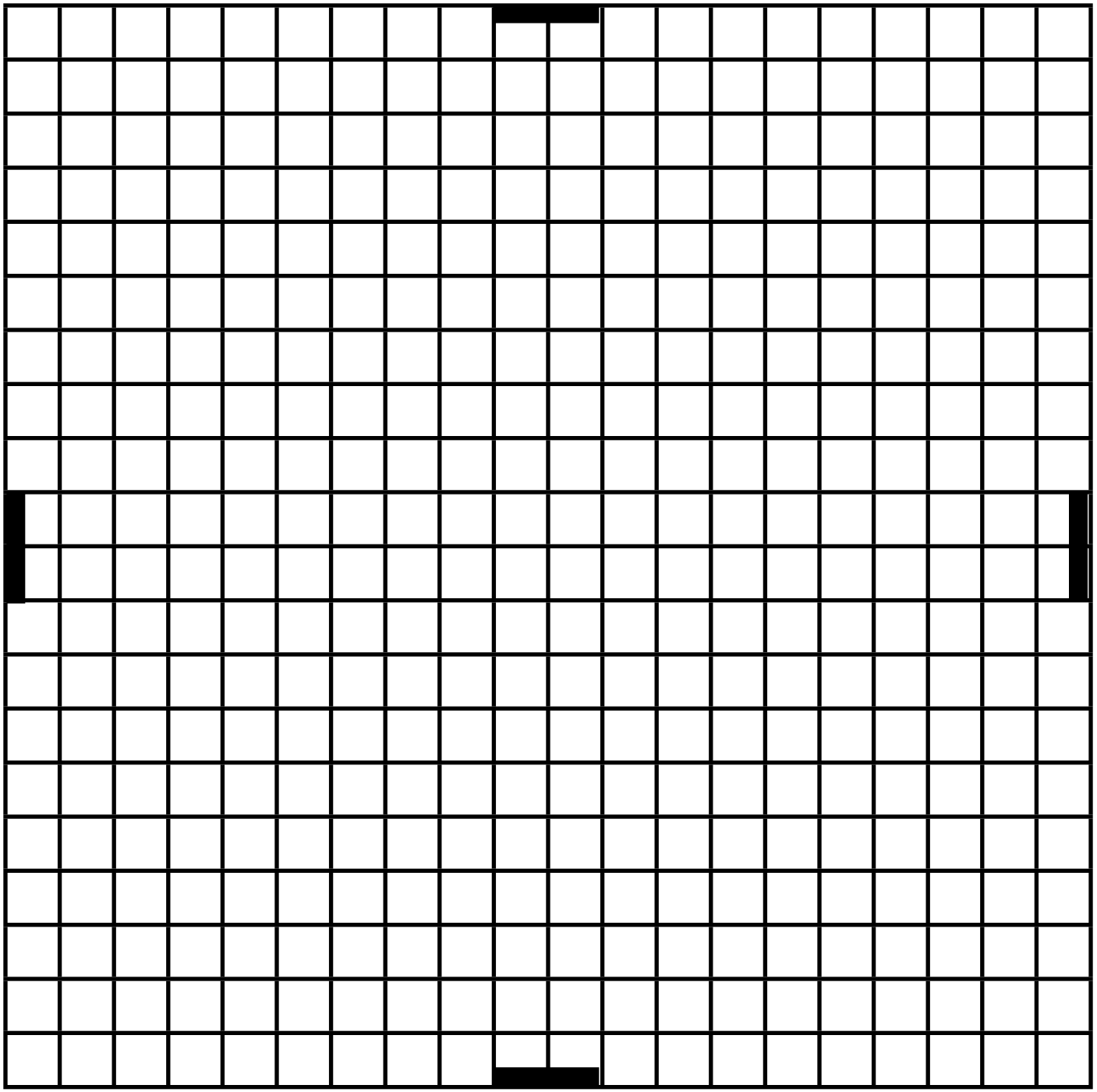
PHASE TWO: DESIGN & BUILD

Use this list of places to assist you in building your city.



apartment	house	condo	street
block	road	highway	intersection
duplex	bungalow	terrace	garage
cathedral	church	temple	office
store	pharmacy	restaurant	fast food
diner	station	police station	first station
skyscraper	tower	building	town hall
library	museum	theater	bakery
coffee shop	mall	shopping center	drive-in
dry cleaners	laundromat	department store	county building
courthouse	nursing home	hospital	jail
prison	park	gas station	bowling alley
school	daycare	airport	bank
barber shop	book store	beach	snack shop
gym	arena	stadium	concert venue
college	salon	toy store	arcade

GEOMETROCITY

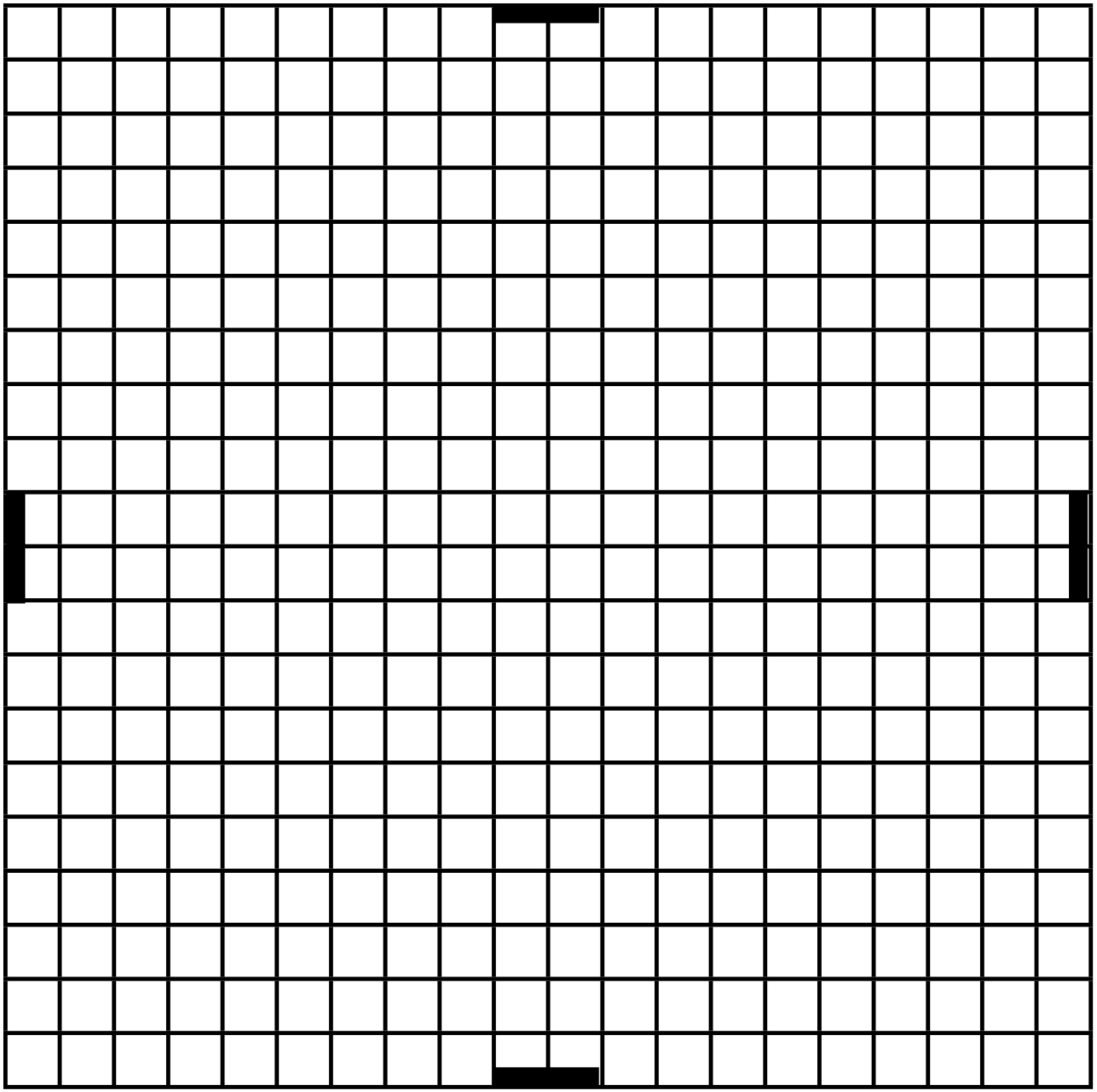


DOWNTOWN

Include these elements in your design of downtown.

	2 SQUARES
	PENTAGON
	4 POINTS
	RECTANGLE
	RIGHT TRIANGLE
	ELLIPSE
	OBTUSE ANGLE
	PARALLEL LINES
	ROTATION
	PARKING GARAGE
	SKYSCRAPER
	HOTEL
	RESTAURANT

GEOMETROCITY

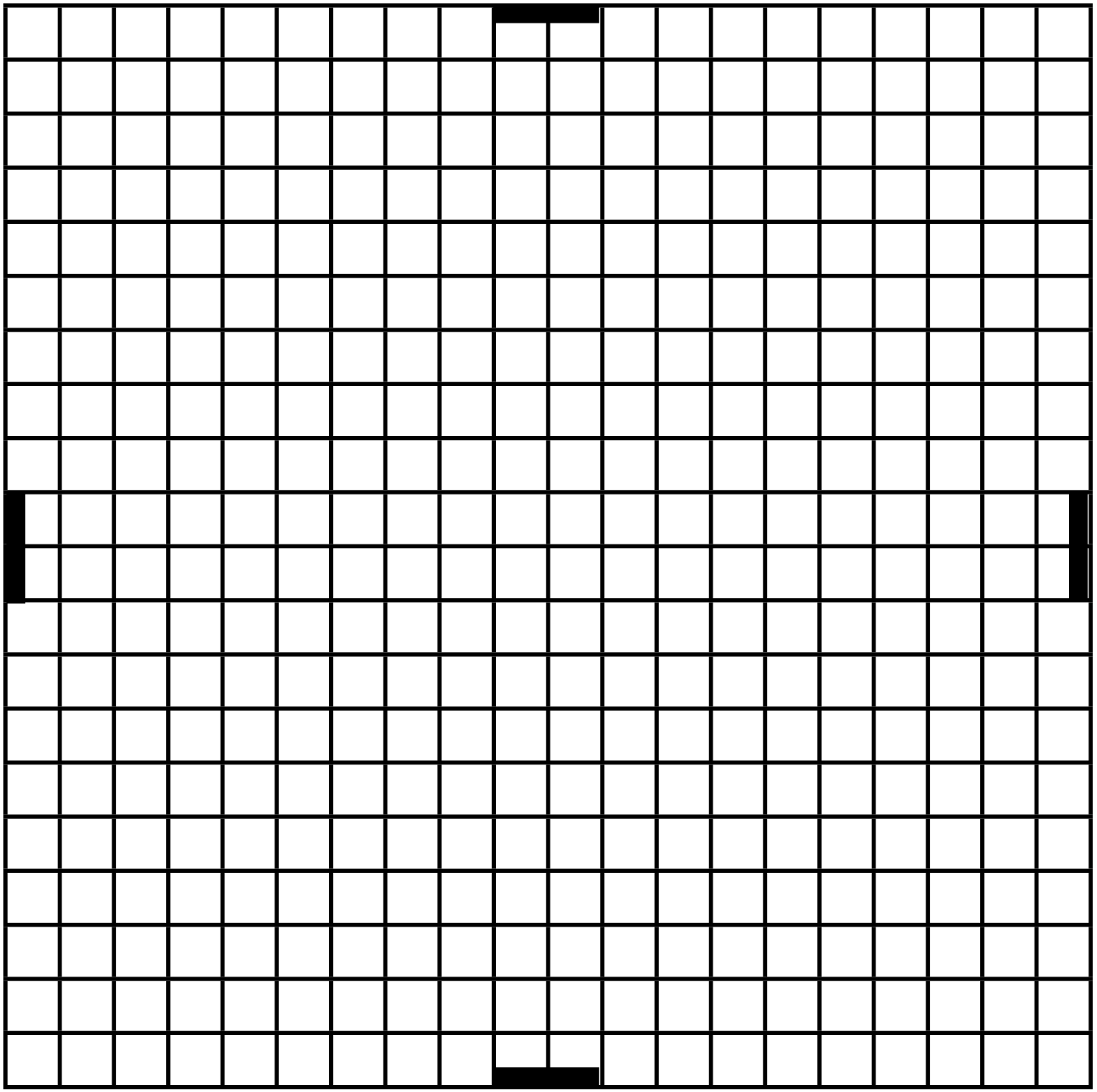


SUBURBS

Include these elements in your design of the suburbs.

	4 RECTANGLES
	5 SQUARES
	SCALENE TRIANGLE
	LINE SEGMENT
	RHOMBUS
	TRAPEZOID
	INTERSECTING LINES
	OBTUSE ANGLE
	CHURCH
	SCHOOL
	GAS STATION
	PHARMACY
	PARK

GEOMETROCITY

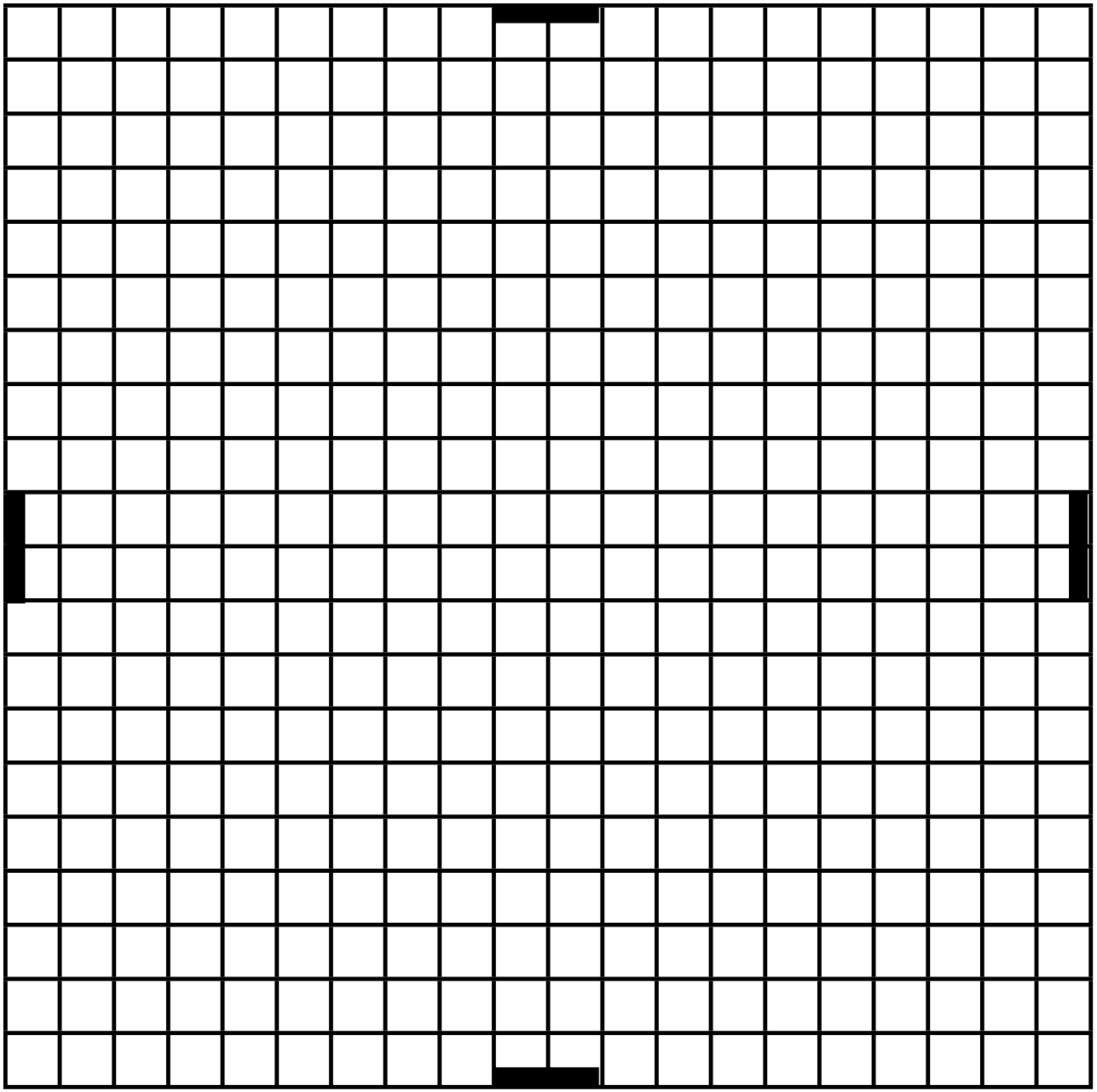


CITY HALL

Include these elements in your design of city hall.

	SQUARE INSIDE A CIRCLE
	LINE SEGMENT
	ARC
	OCTAGON
	ISOSCELES TRIANGLE
	3 RECTANGLES TOUCHING EACH OTHER
	INTERSECTING LINES
	VERTEX
	COURT HOUSE
	ATTORNEY'S OFFICE
	PARKING LOT
	SUBWAY ENTRANCE
	LIBRARY

GEOMETROCITY

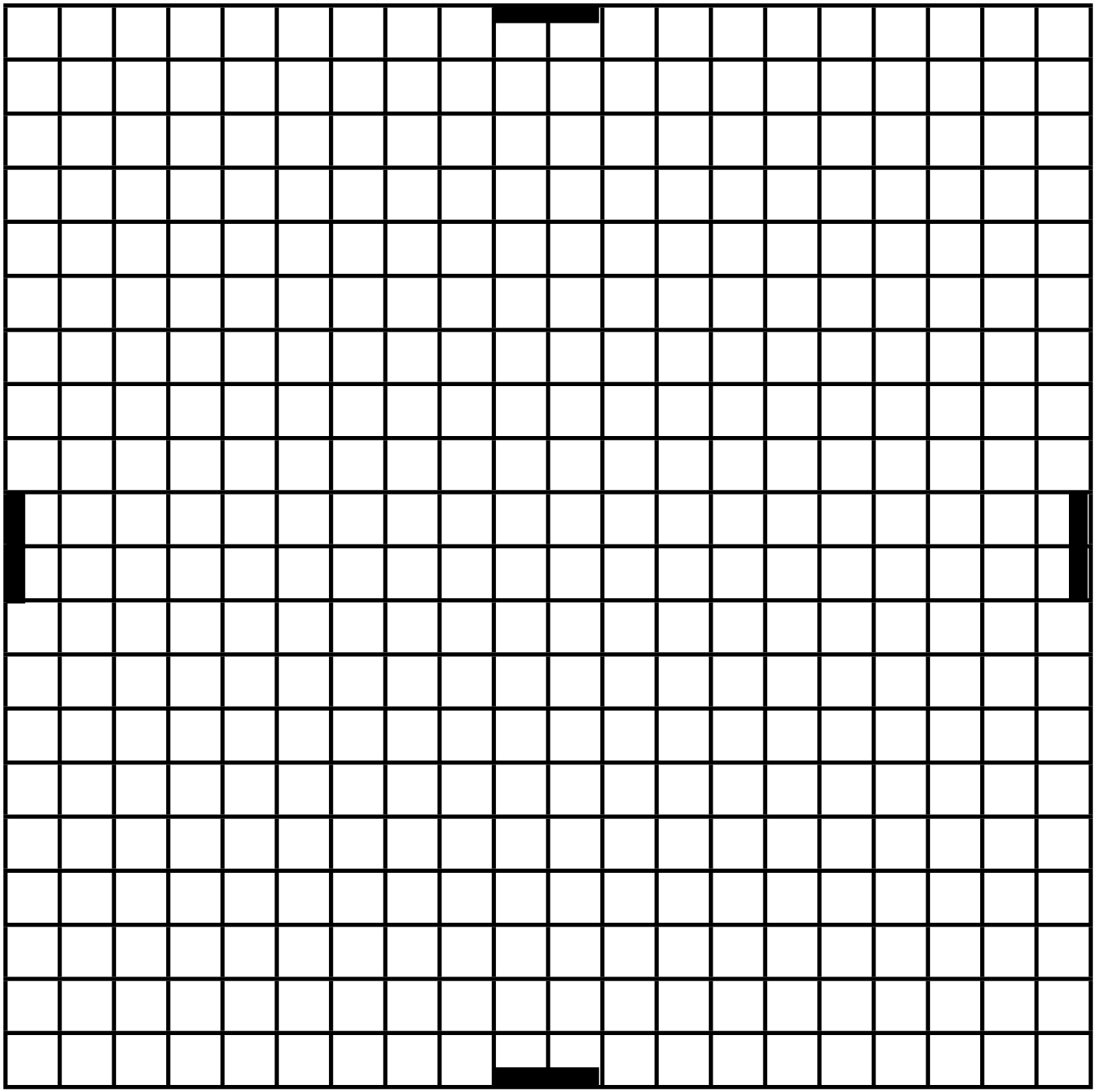


INDUSTRIAL PARK

Include these elements in your design of the industrial park.

	ACUTE ANGLE
	THREE PARALLEL LINES
	CIRCLE
	PENTAGON
	SCALENE TRIANGLE
	POLYGON CUT WITH SYMMETRY
	DECAGON
	PARALLELOGRAM
	WAREHOUSE
	GATED EMPTY LOT
	RECYCLING DEPOT
	MANUFACTURING PLANT
	SUBWAY ENTRANCE

GEOMETROCITY

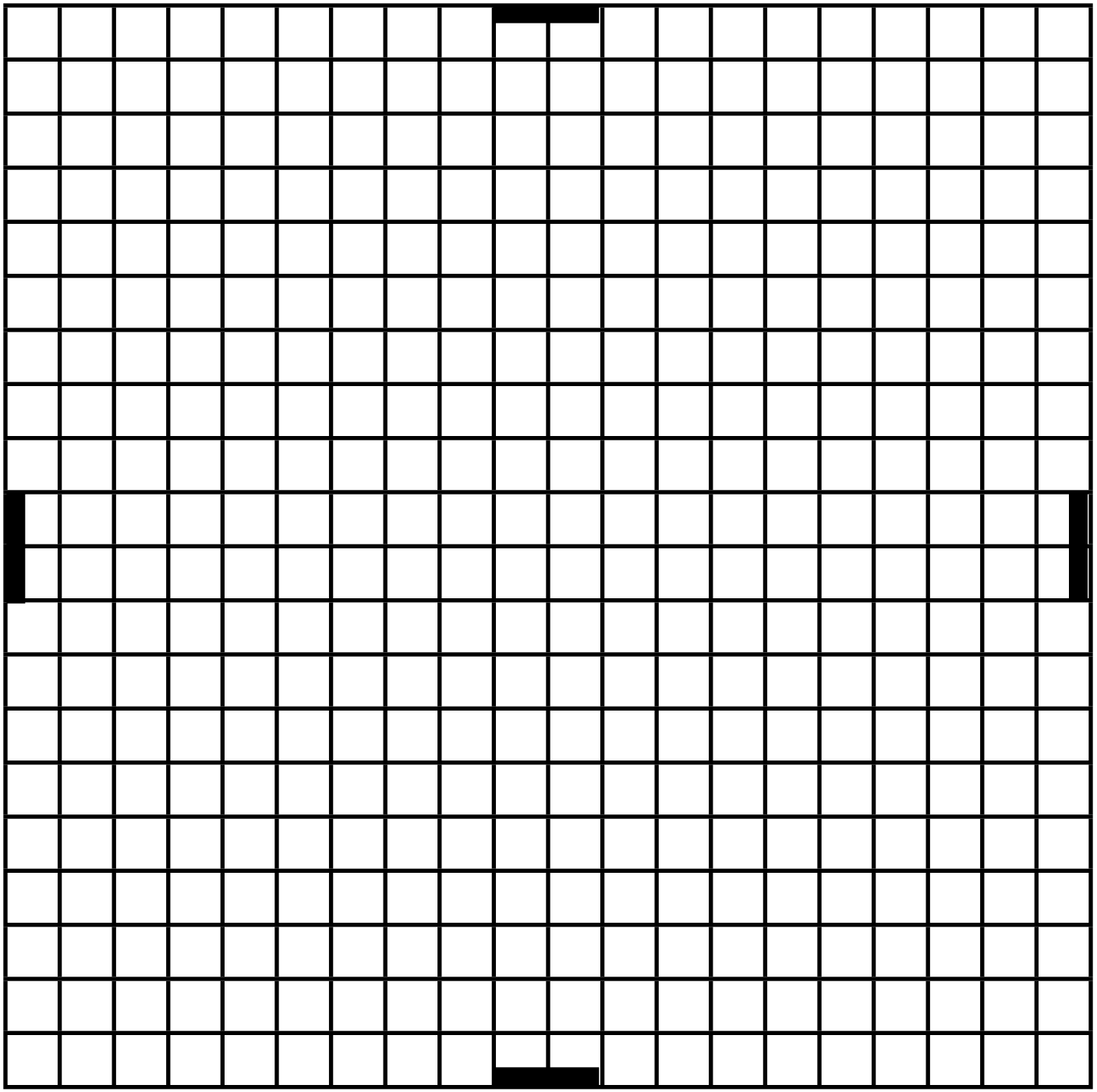


PUBLIC WORKS

Include these elements in your design of the public works.

	THREE TRIANGLES
	LINE OF SYMMETRY THROUGH A POLYGON
	PENTAGON TOUCHING A RECTANGLE
	2 EQUILATERAL TRIANGLES
	OCTAGON
	INTERSECTING LINES
	OBTUSE ANGLE
	POLICE STATION
	FIRE HOUSE
	CITY WATER
	TRAIN STATION
	SEWAGE TREATMENT FACILITY
	POST OFFICE

GEOMETROCITY

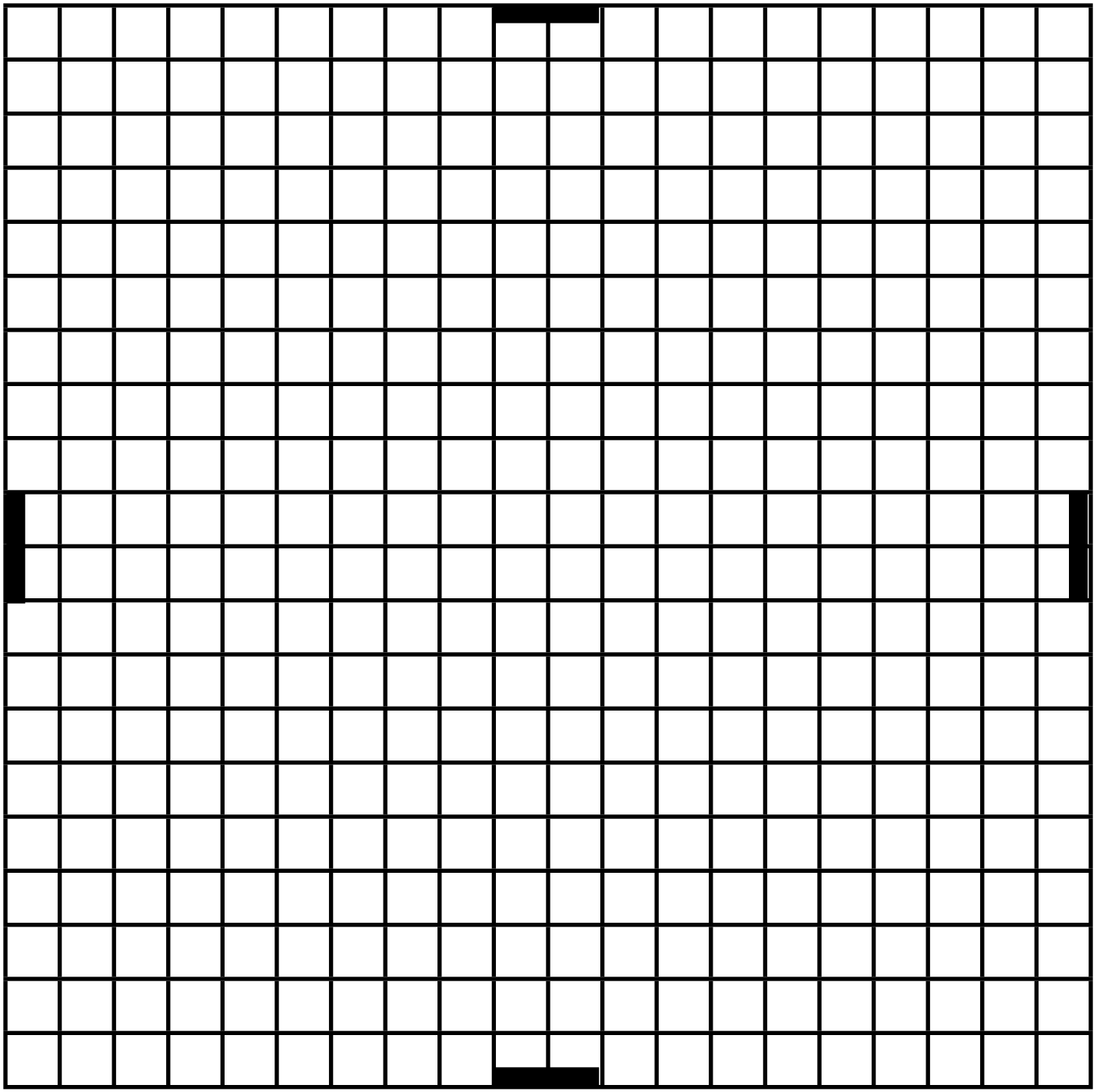


BUSINESS DISTRICT

Include these elements in your design of the business district.

	LINE OF SYMMETRY
	SCALENE TRIANGLE
	STRAIGHT ANGLE
	2 RECTANGLES SHOWING A REFLECTION
	2 SQUARES
	3 TRIANGLES ALL CONNECTED
	ELLIPSE
	BANK
	HOTEL
	5 TAXIS
	PAWN SHOP
	OFFICE BUILDING
	COFFEE SHOP

GEOMETROCITY

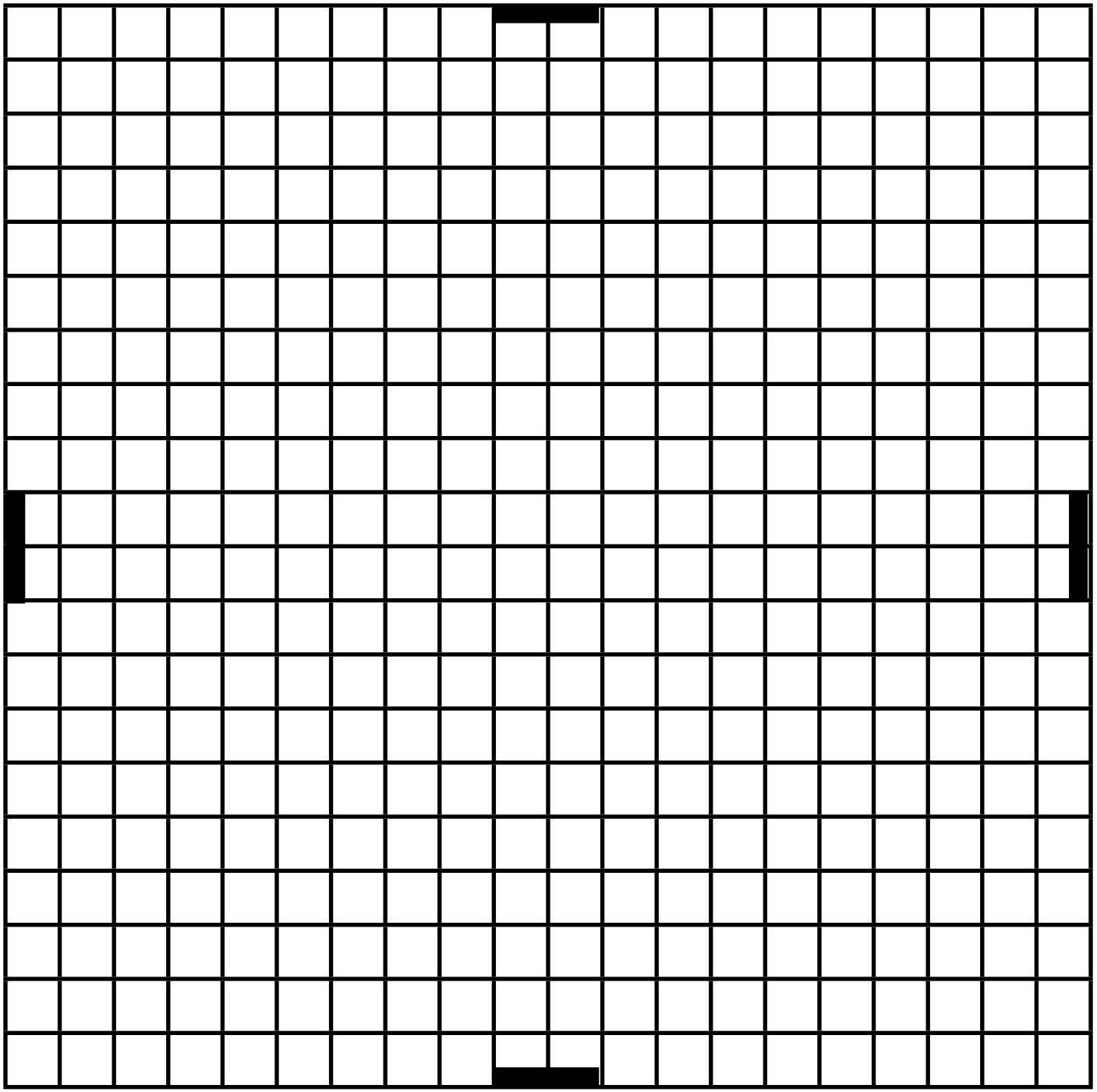


PARK DISTRICT

Include these elements in your design of the park district.

	RHOMBUS
	ARC
	CIRCLE
	ACUTE ANGLE
	HEXAGON
	PERPENDICULAR LINES
	ISOSCELES TRIANGLE
	VERTEX
	BASEBALL FIELD
	PARK
	FOREST PRESERVE
	PARK
	POND

GEOMETROCITY

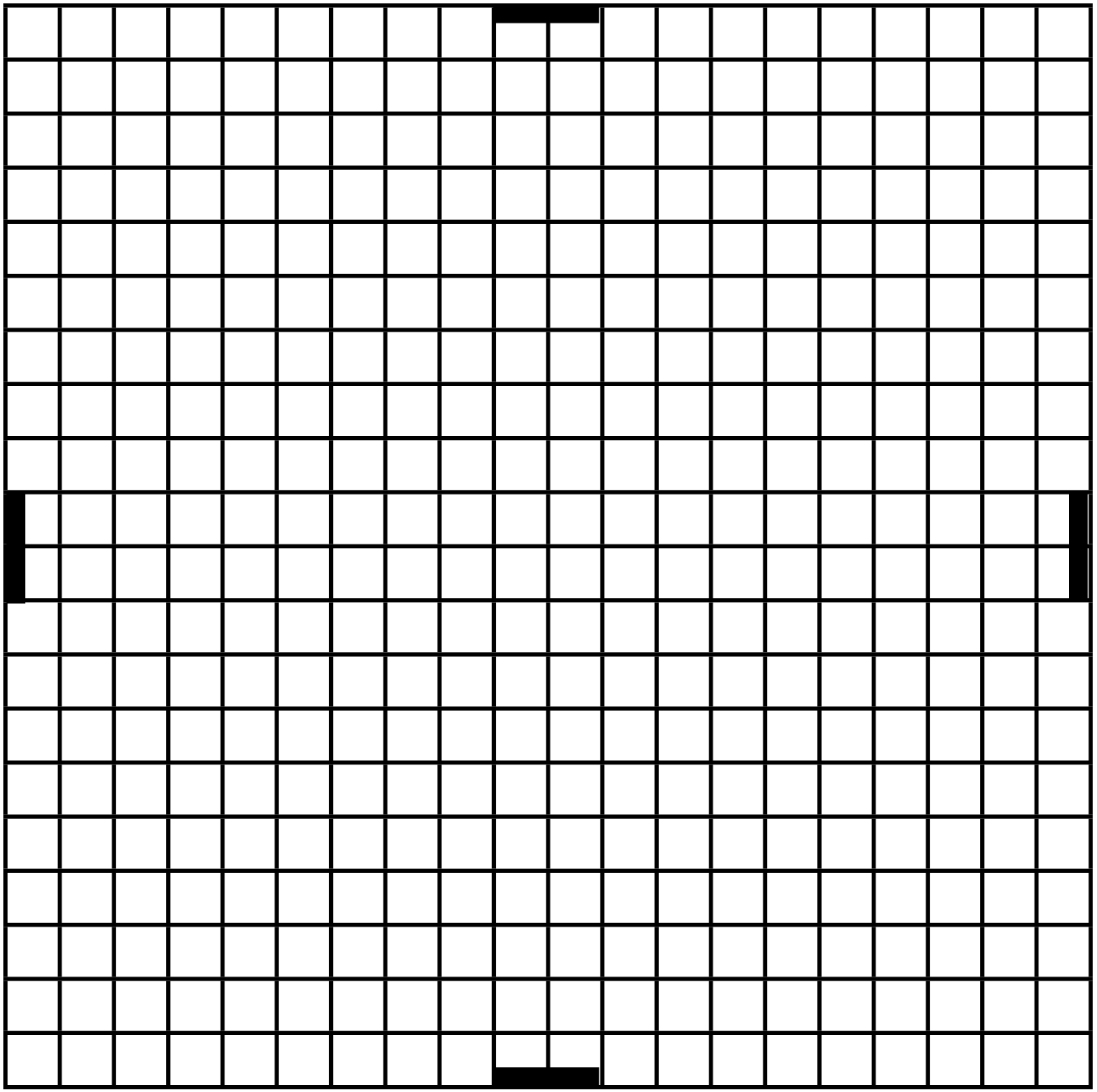


CITY LIVING

Include these elements in your design of city living.

	TRAPEZOID
	LINE INTERSECTING TWO PARALLEL LINES
	HALF-CIRCLE
	STRAIGHT ANGLE
	POLYGON
	4 POINTS
	TWO RAYS WITH THE SAME ENDPOINT
	LINE SEGMENT
	3 APARTMENT BUILDING
	LAUNDRY MAT
	DOG PARK
	GROCERY STORE
	FAST FOOD EATERY

GEOMETROCITY

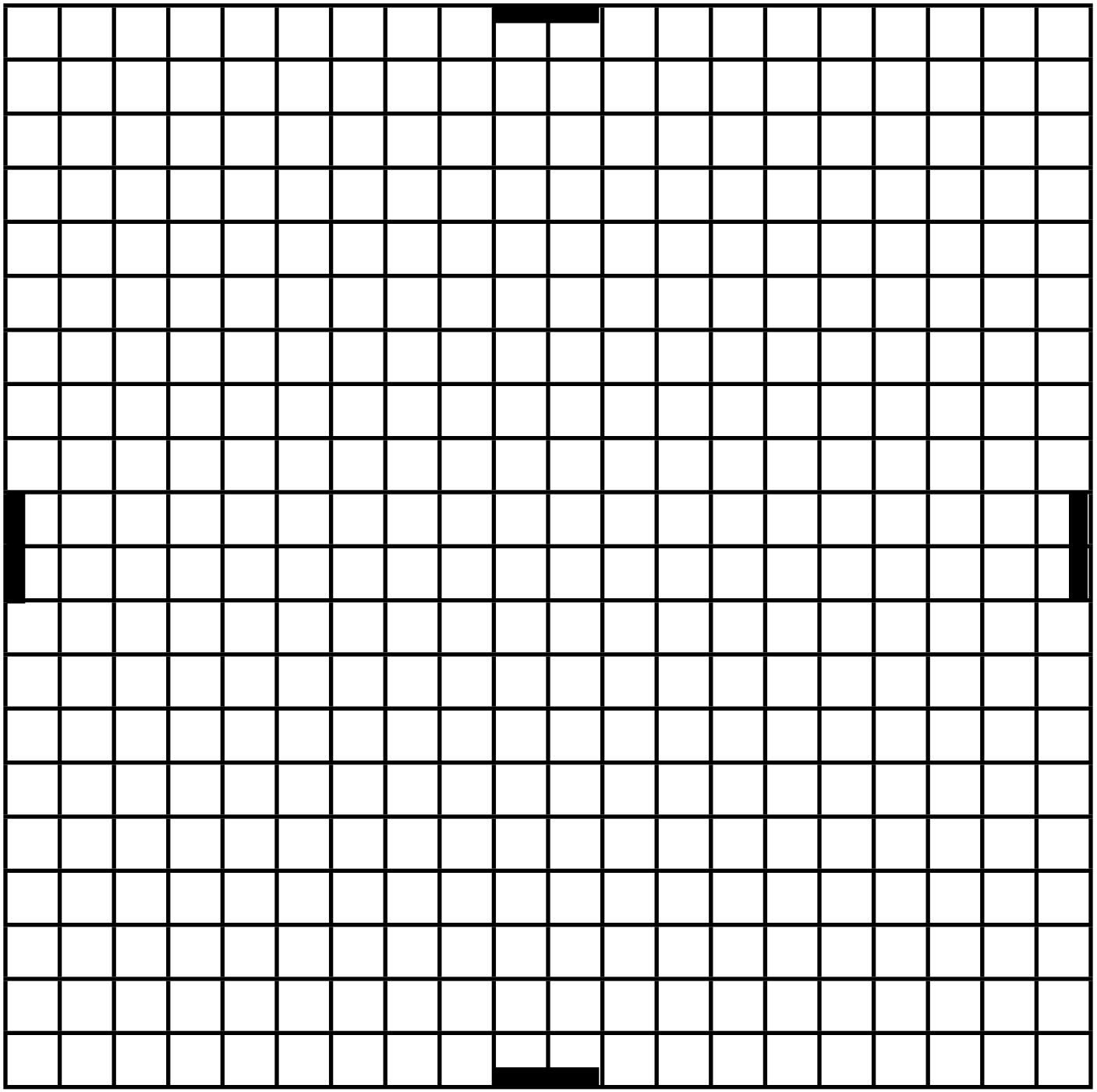


TOURIST ATTRACTION

Include these elements in your design of tourist attractions.

	CIRCLE INSIDE A SQUARE
	SQUARE CUT INTO FOUR EQUAL PARTS
	ARC
	ACUTE ANGLE
	RADIUS
	10 VERTICES
	ASYMMETRICAL SHAPE
	SEPTAGON
	MUSEUM
	OPERA HOUSE
	SPORTS ARENA
	ZOO
	AQUARIUM

GEOMETROCITY



ENTERTAINMENT

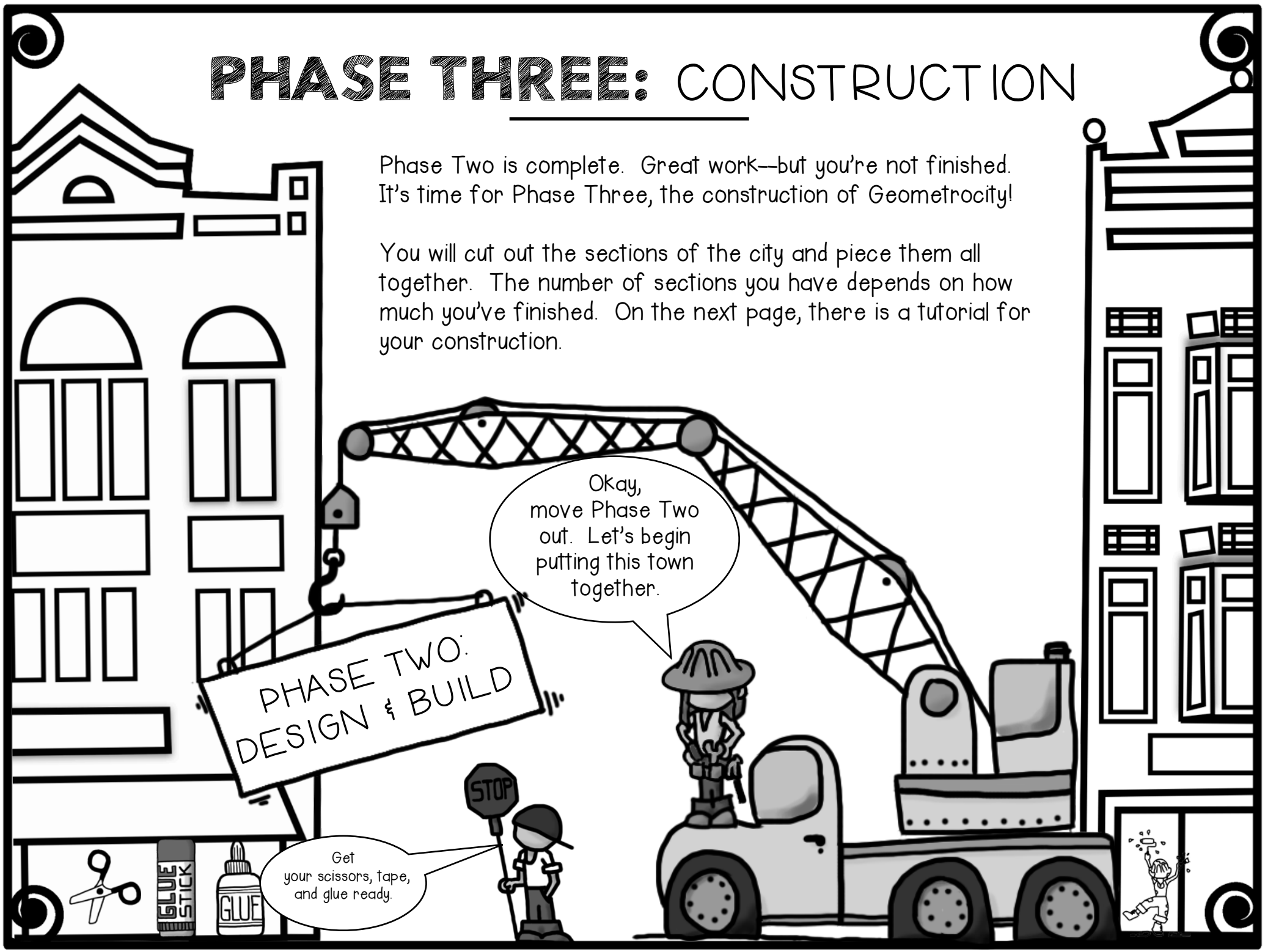
Include these elements in your design of the entertainment.

	LINE WITH 3 SEGMENTS
	IRREGULAR POLYGON
	INTERSECT
	KITE
	NONAGON
	COMPLIMENTARY ANGLE
	REFLECTION OF 2 RHOMBUS'
	TANGENT
	MOVIE THEATER
	MUSEUM
	3 RESTAURANTS
	3 ATM MACHINES
	DANCE HALL

PHASE THREE: CONSTRUCTION

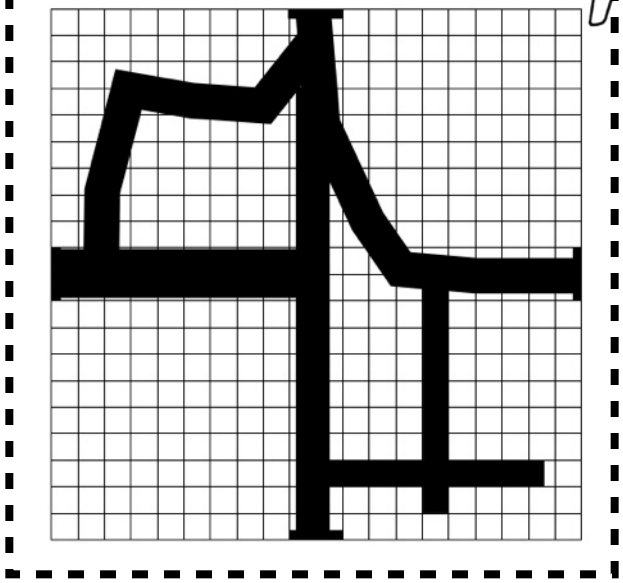
Phase Two is complete. Great work--but you're not finished. It's time for Phase Three, the construction of Geometrocity!

You will cut out the sections of the city and piece them all together. The number of sections you have depends on how much you've finished. On the next page, there is a tutorial for your construction.



PHASE THREE: CONSTRUCTION

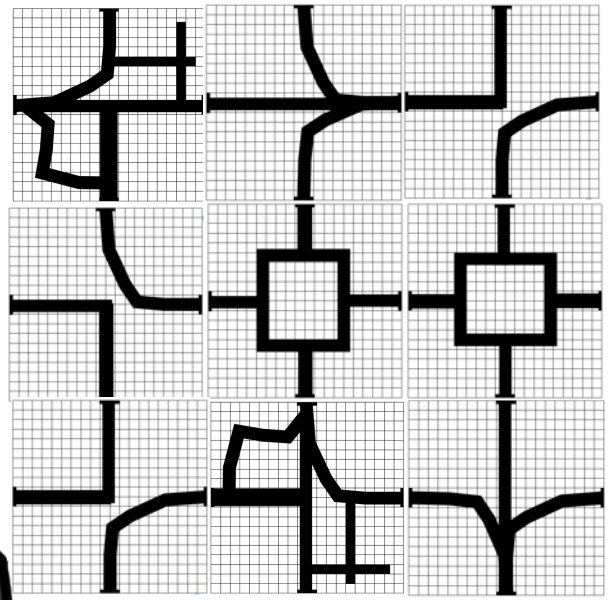
Take each section from Phase Two and cut them out.



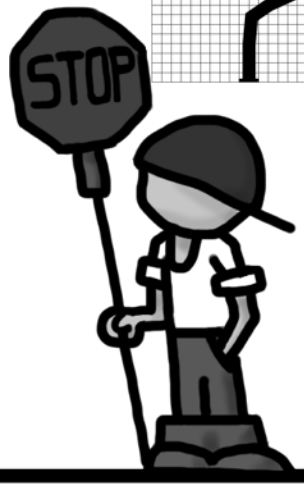
GO SLOW when cutting!

When all the sections are cut out, lay them down and begin to visualize how you would like your city to look.

If you cut out nine sections it would look something like this.



REMEMBER: Add color to all the city sections. It adds details and looks great.

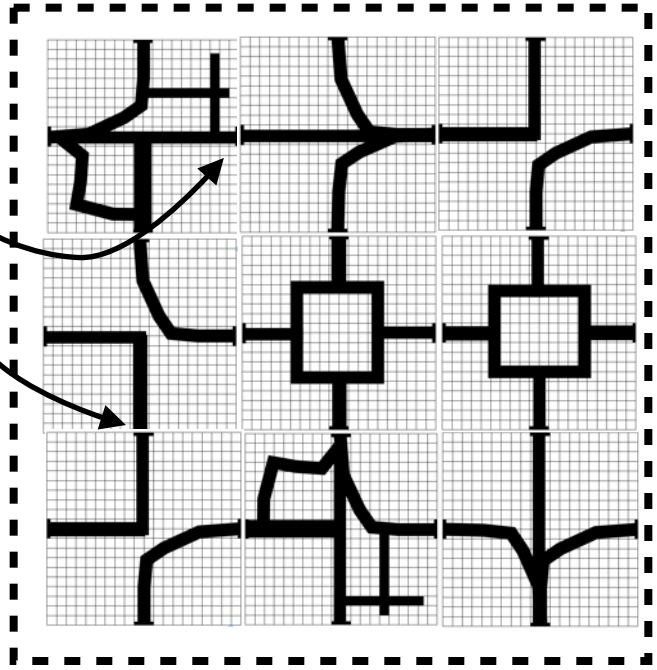


Go to the next page after you cut and laid out all your pieces.

PHASE THREE: CONSTRUCTION

CITY PLANNING LAYOUT

Did you notice how all the roads match up with each other? You can move all the sections around AND they will always match up. Even if you rotate the sections, everything still fits together.



Planning your layout requires time and thought. Builders can't just put something anywhere they want. There needs to be reasons why they chose it this way.

After you decide the layout of the city explain your reasons to the mayor and commissioner in the space below and/or on the following page.

CITY PLANNING REASONING

PHASE THREE: CONSTRUCTION

CITY PLANNING REASONING

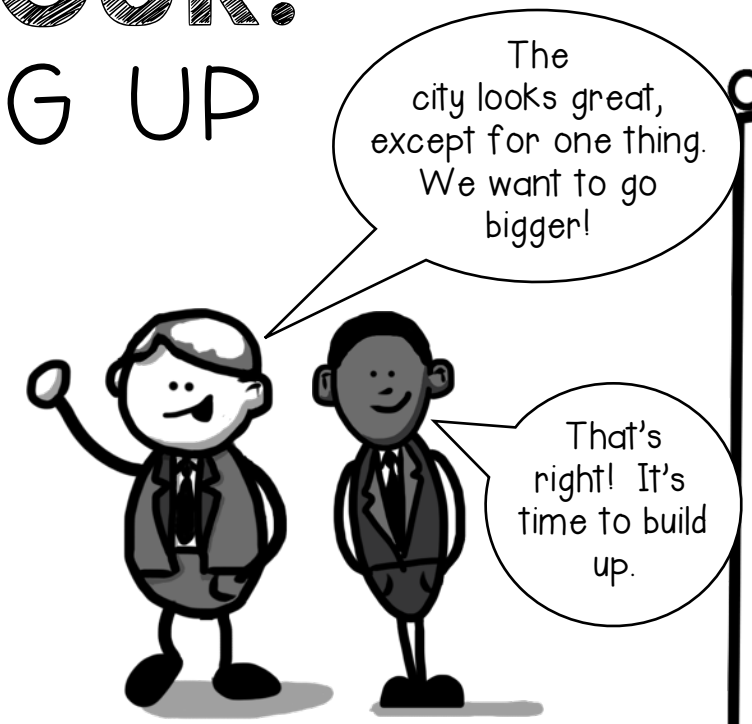
PHASE THREE: CONSTRUCTION

YOUR CLASSMATE'S CITY

Great ideas are everywhere. Take a few minutes and look at what your classmates have created. There are tons of great ideas being generated.

List SIX things that you like from all of your classmate's cities and write them in the blanks below. Write a sentence, jot down a note, or draw a picture with labels. Just write what you like.

PHASE FOUR:
BUILDING UP



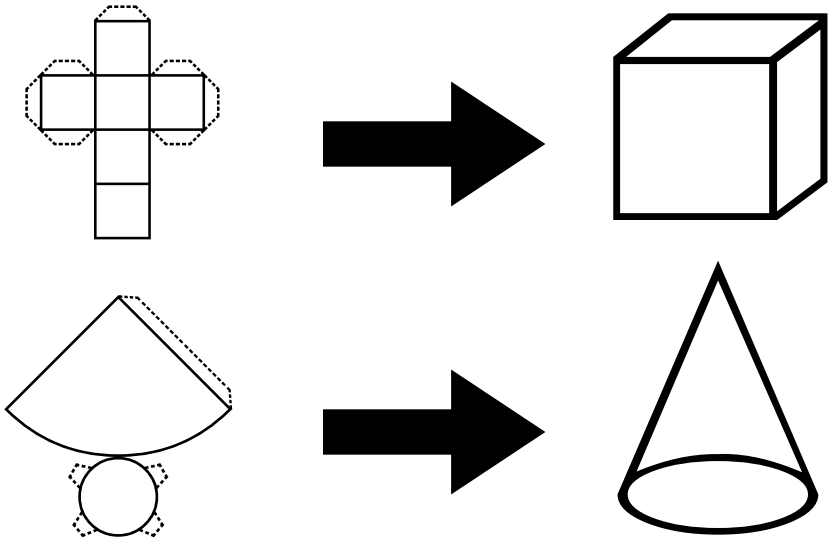
SHAPES TO KNOW

- cubes
- prisms
- spheres
- pyramids
- cylinders
- cones

For the next phase you'll be working with geometric solids (three dimensional shapes).

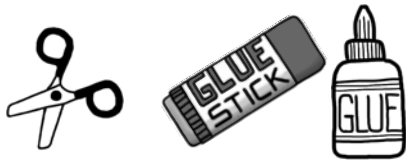
You will be constructing nets, which are two dimensional shapes that can be folded to form a 3D shape.

These nets will be used to turn your 2D shapes in your city into a 3D masterpiece.



PHASE FOUR: BUILDING UP

Objective: Create four nets from one section of your city. Draw and color it to look like a specific building.



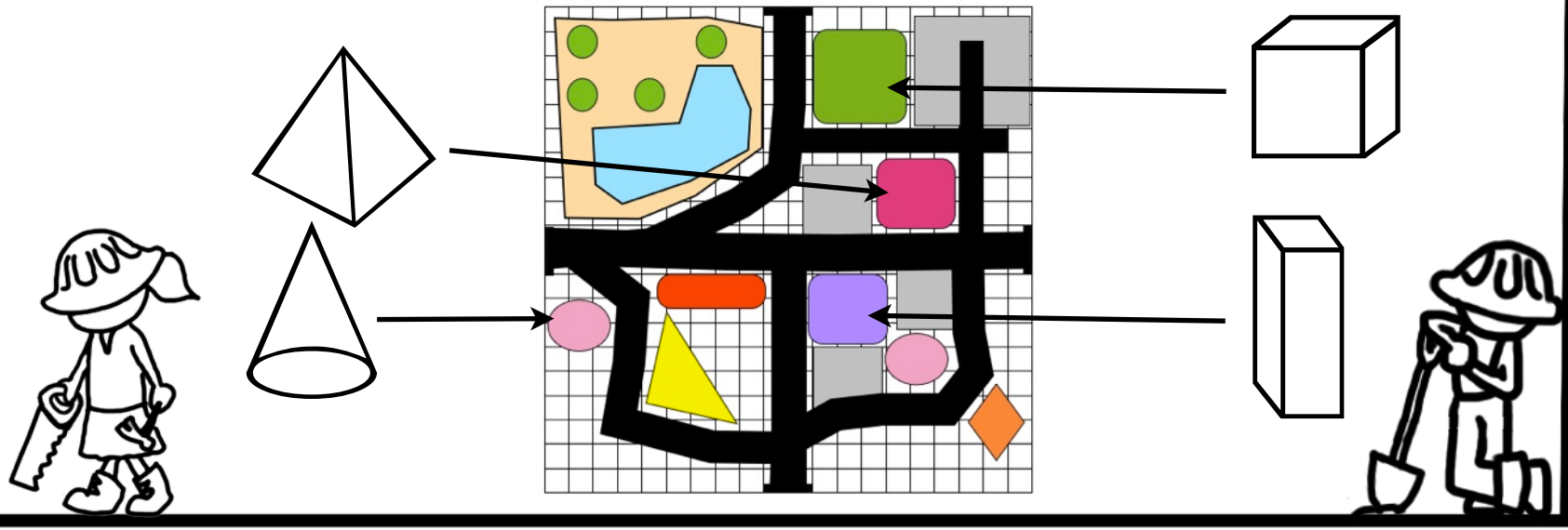
DIRECTIONS:

-Pick one section of your city that you would like to create in 3D using nets.

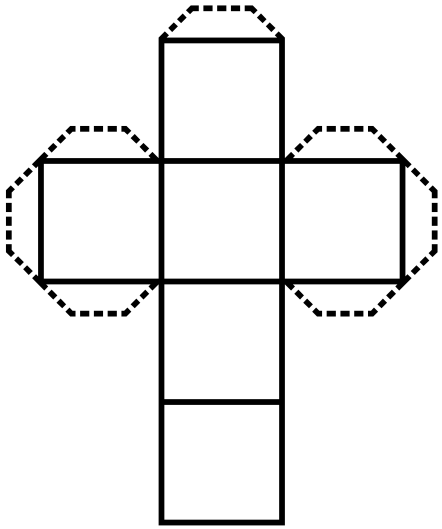
-Before you cut out the net, draw and color it (e.g., "bank" or "stadium"). If you'd like to give it a proper name such as the Eiffel Tower or the Hancock Building you may do so.

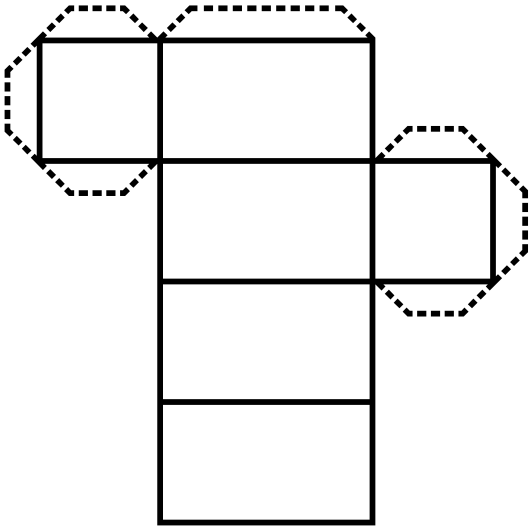
-Cut out the nets and put them together using glue. Follow the folds very carefully and ask a neighbor for assistance.

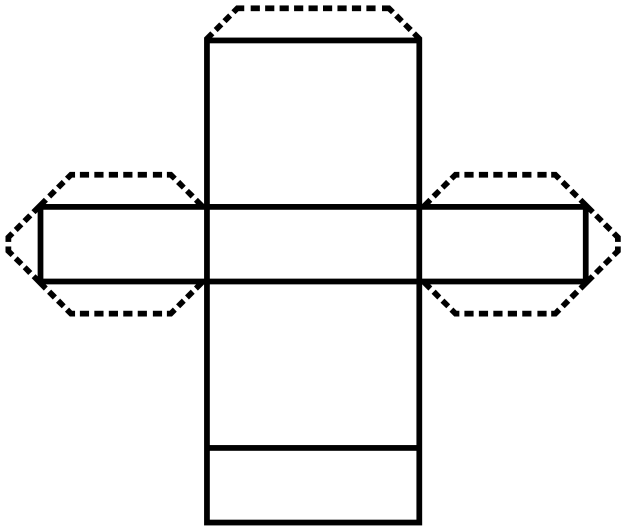
You might find that some buildings require more than one net. Combine them to create the most realistic (or outrageous) building. The possibilities are limitless.

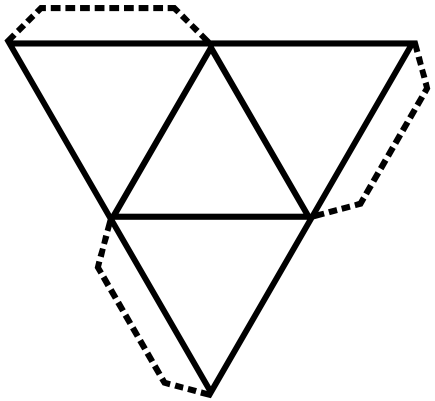


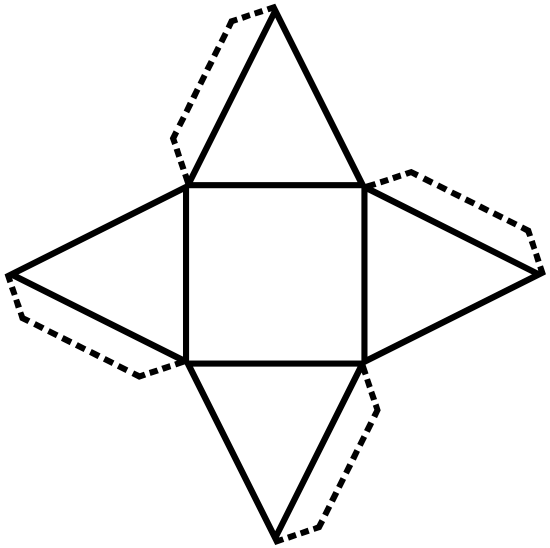
PHASE FOUR: BUILDING UP

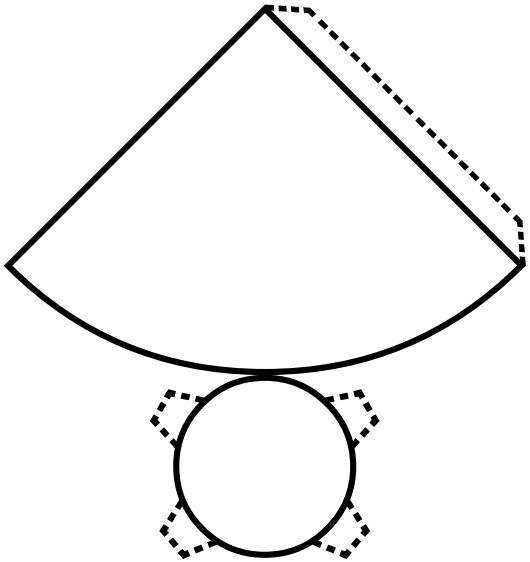




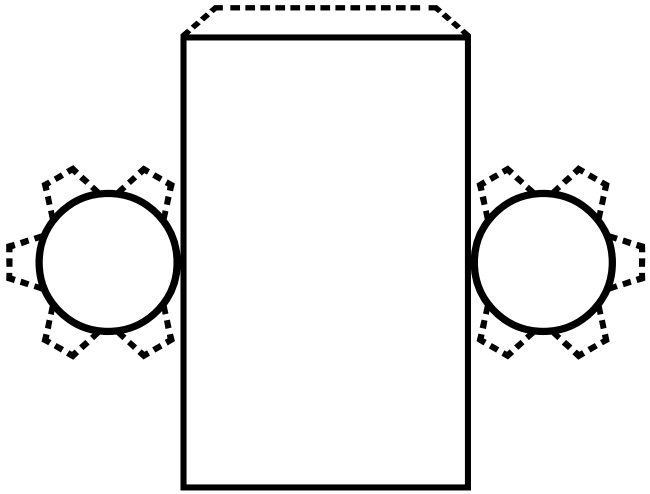


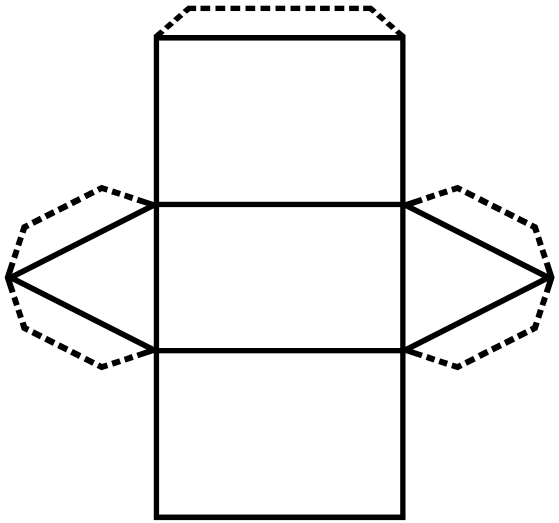


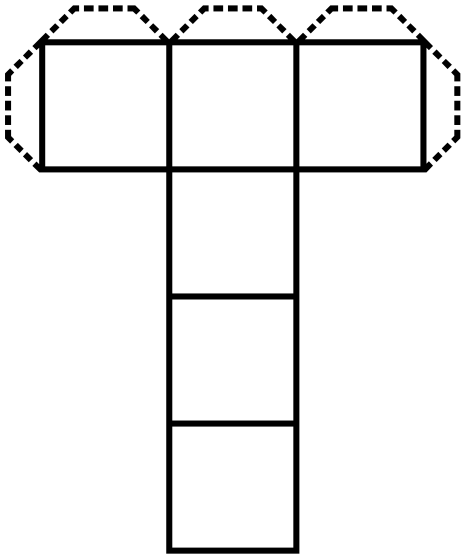


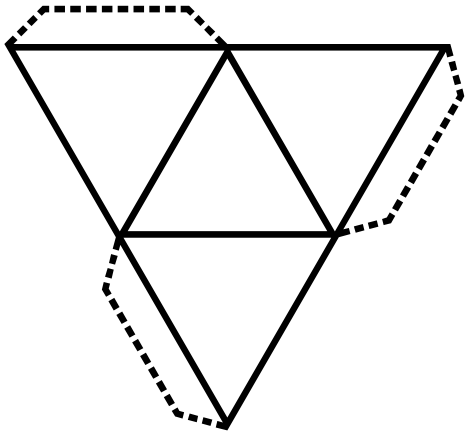


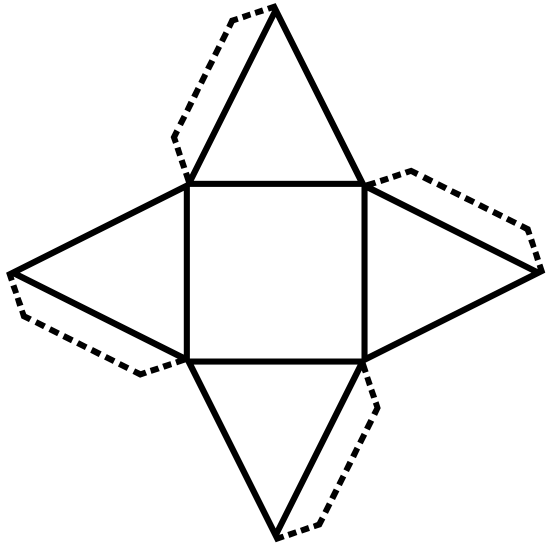
PHASE FOUR: BUILDING UP

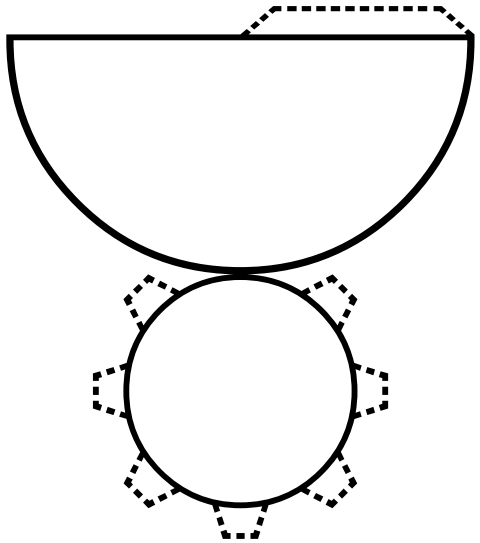




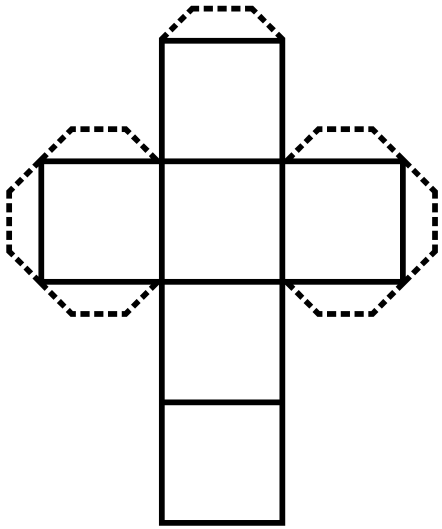


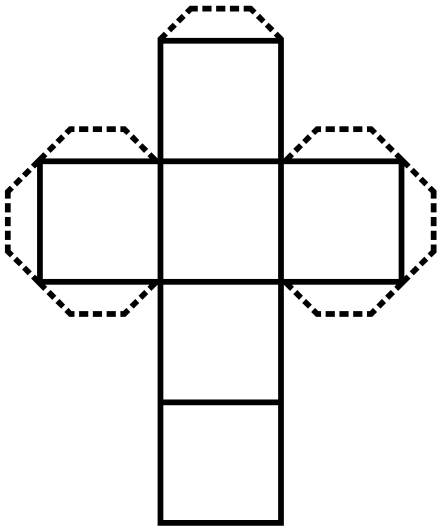


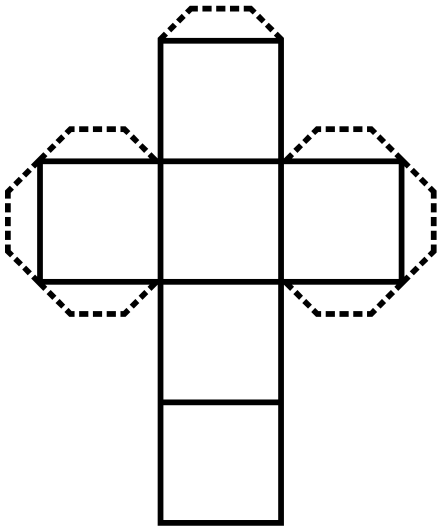


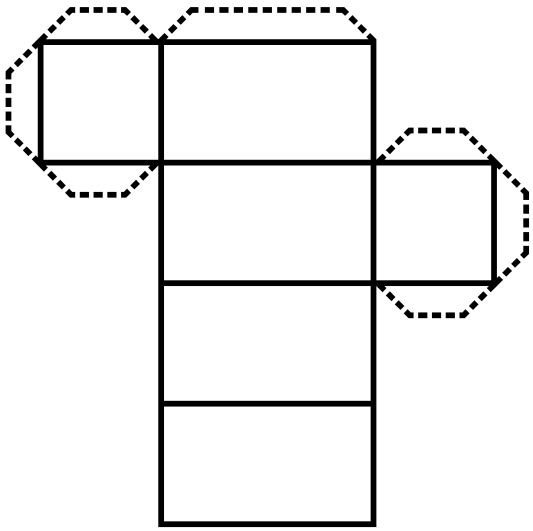


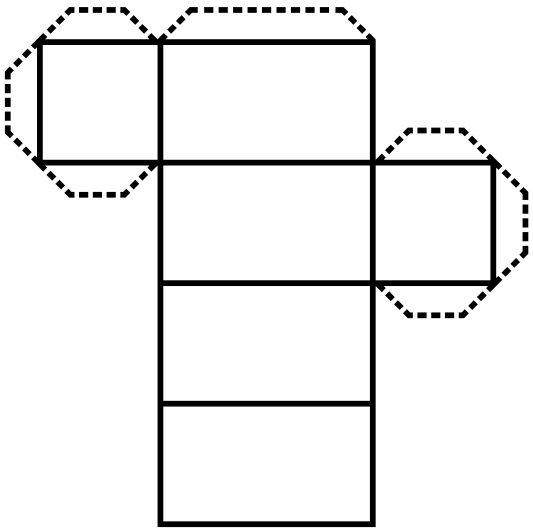
PHASE FOUR: BUILDING UP

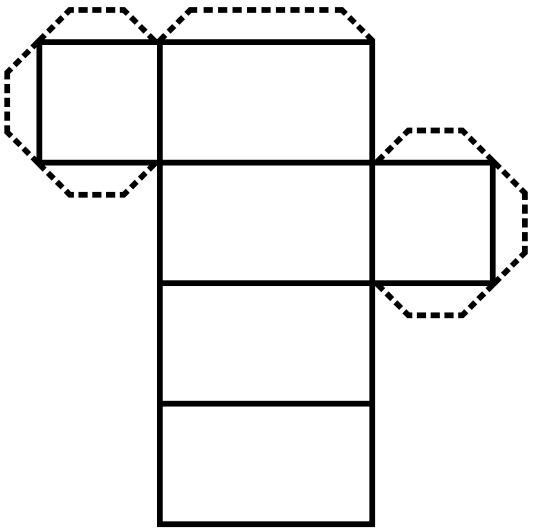




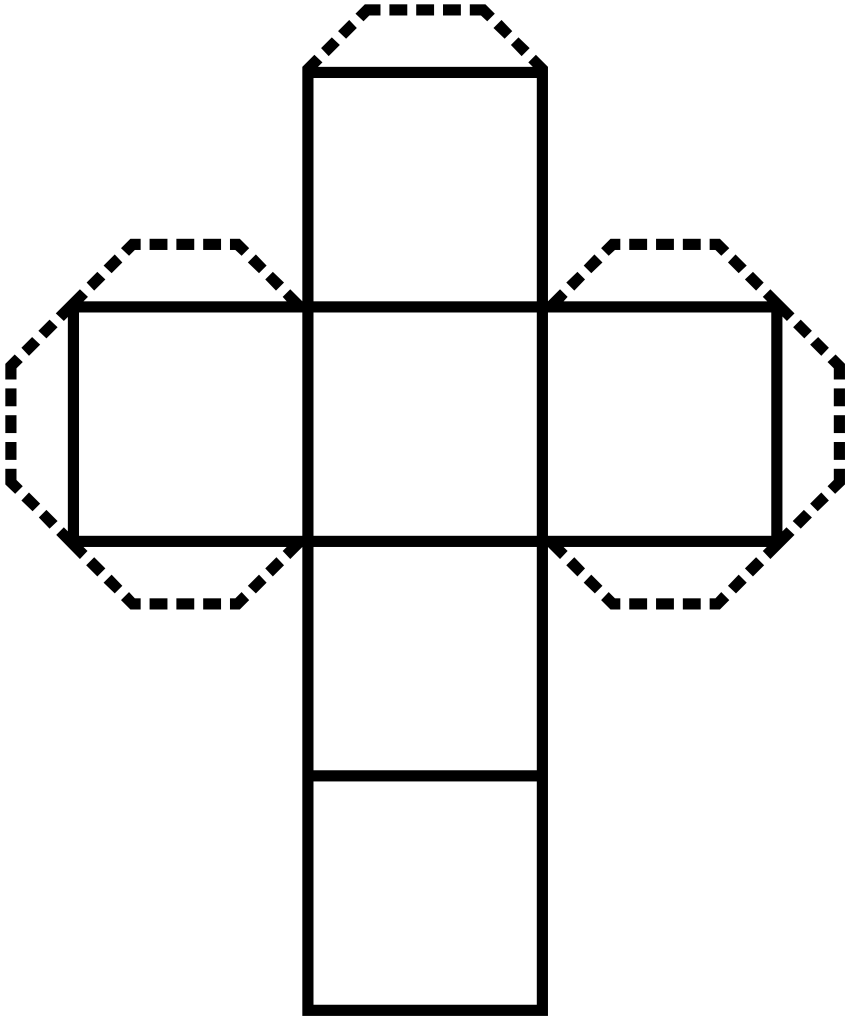


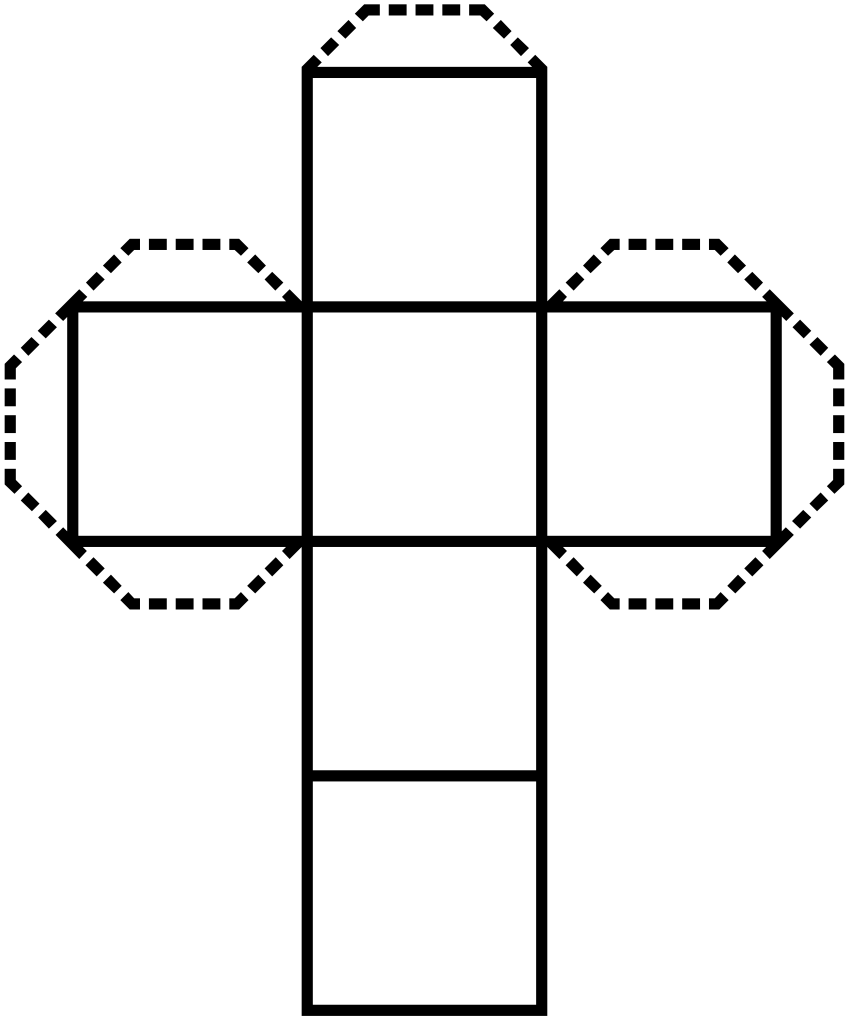




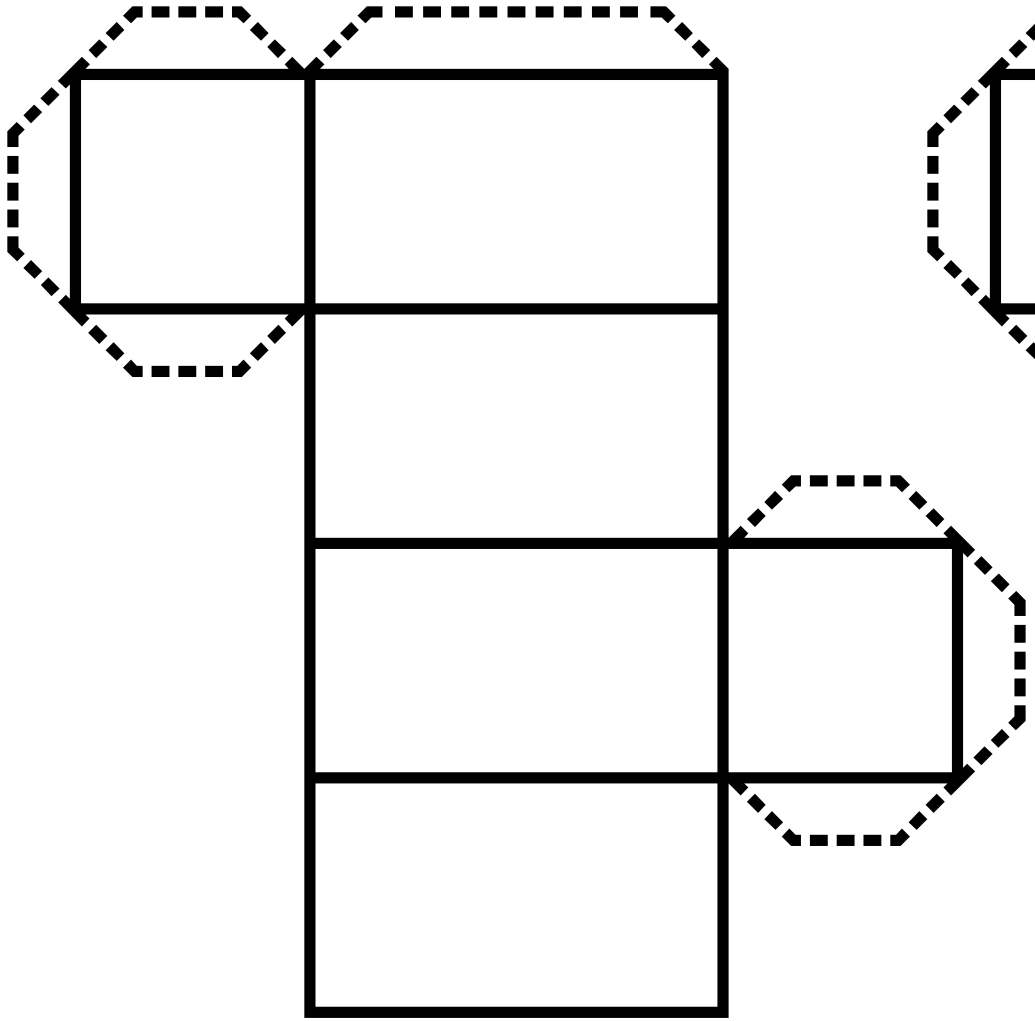


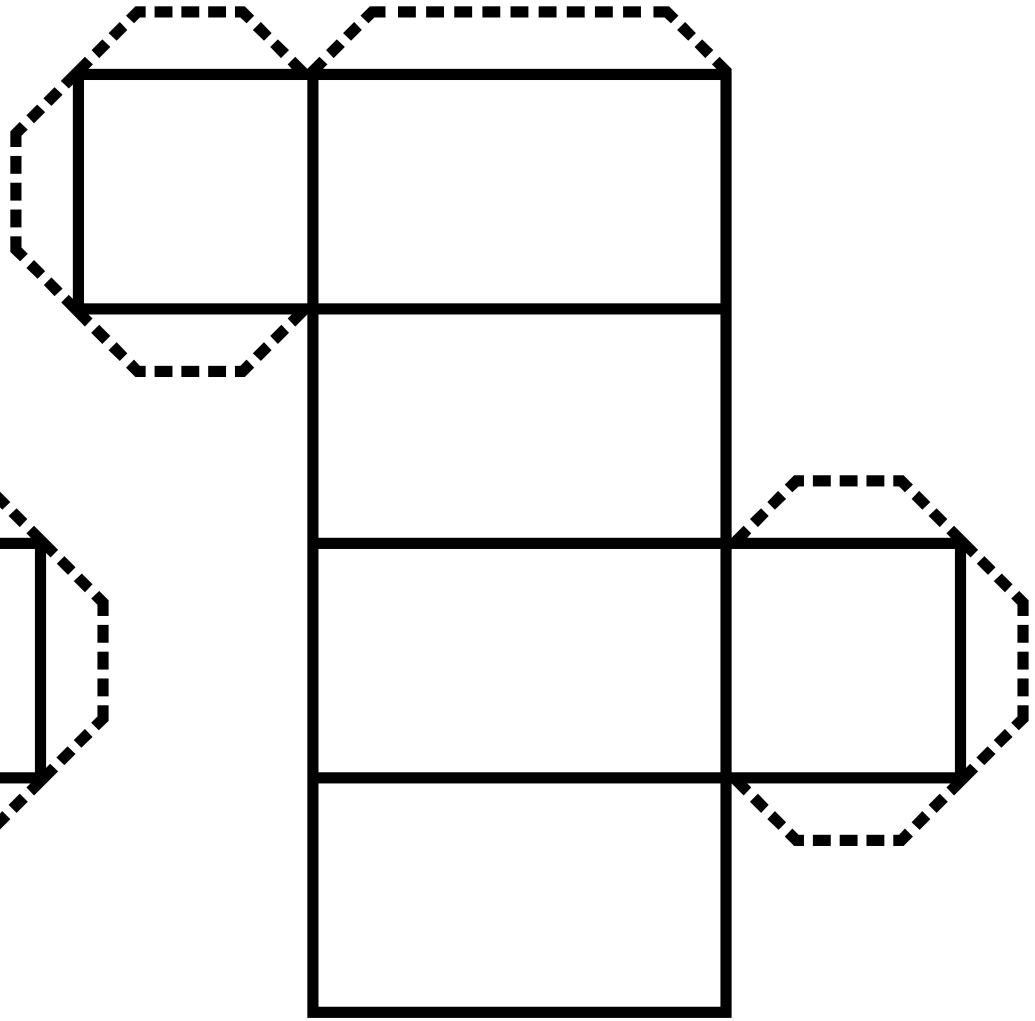
PHASE FOUR: BUILDING UP





PHASE FOUR: BUILDING UP





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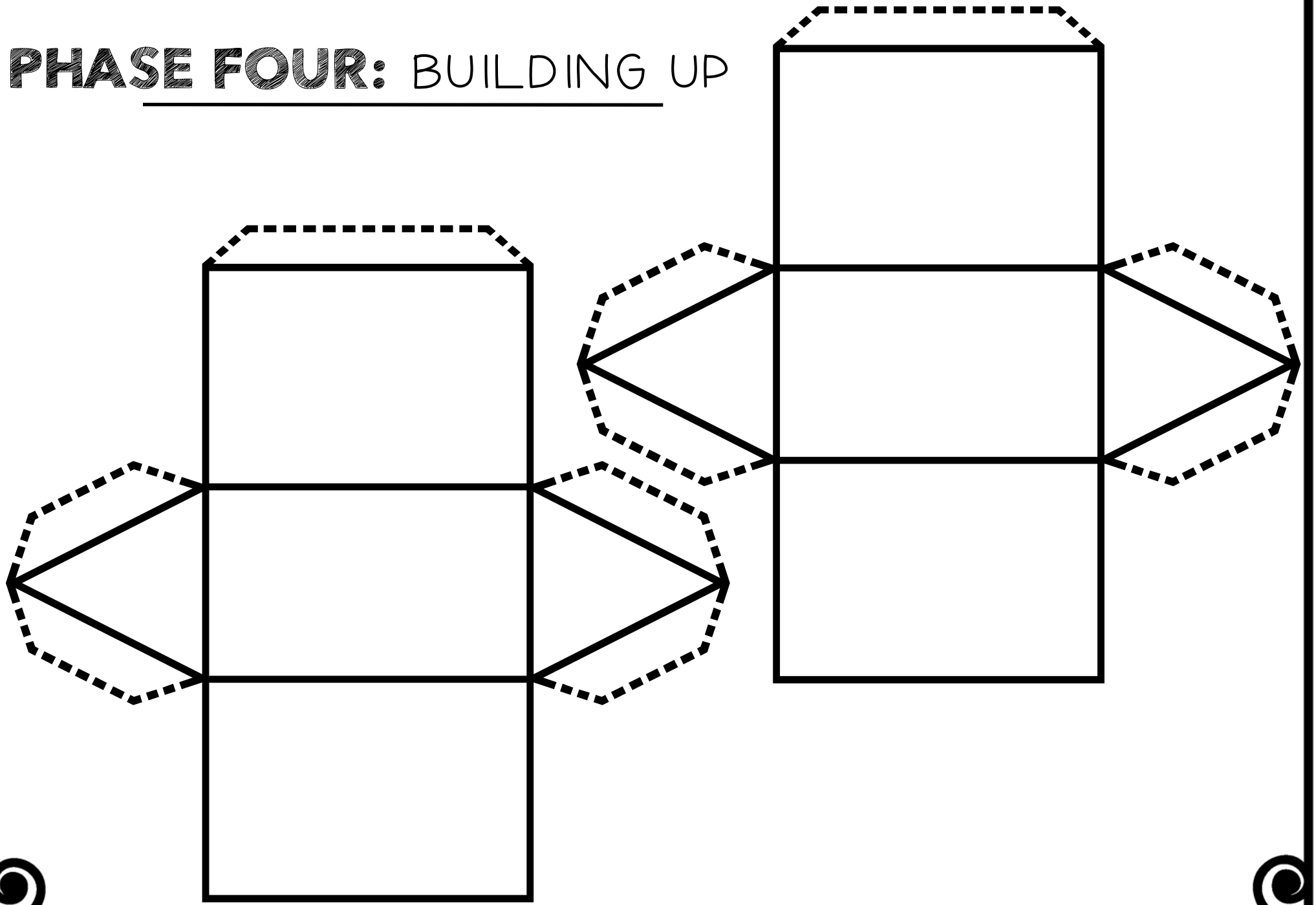

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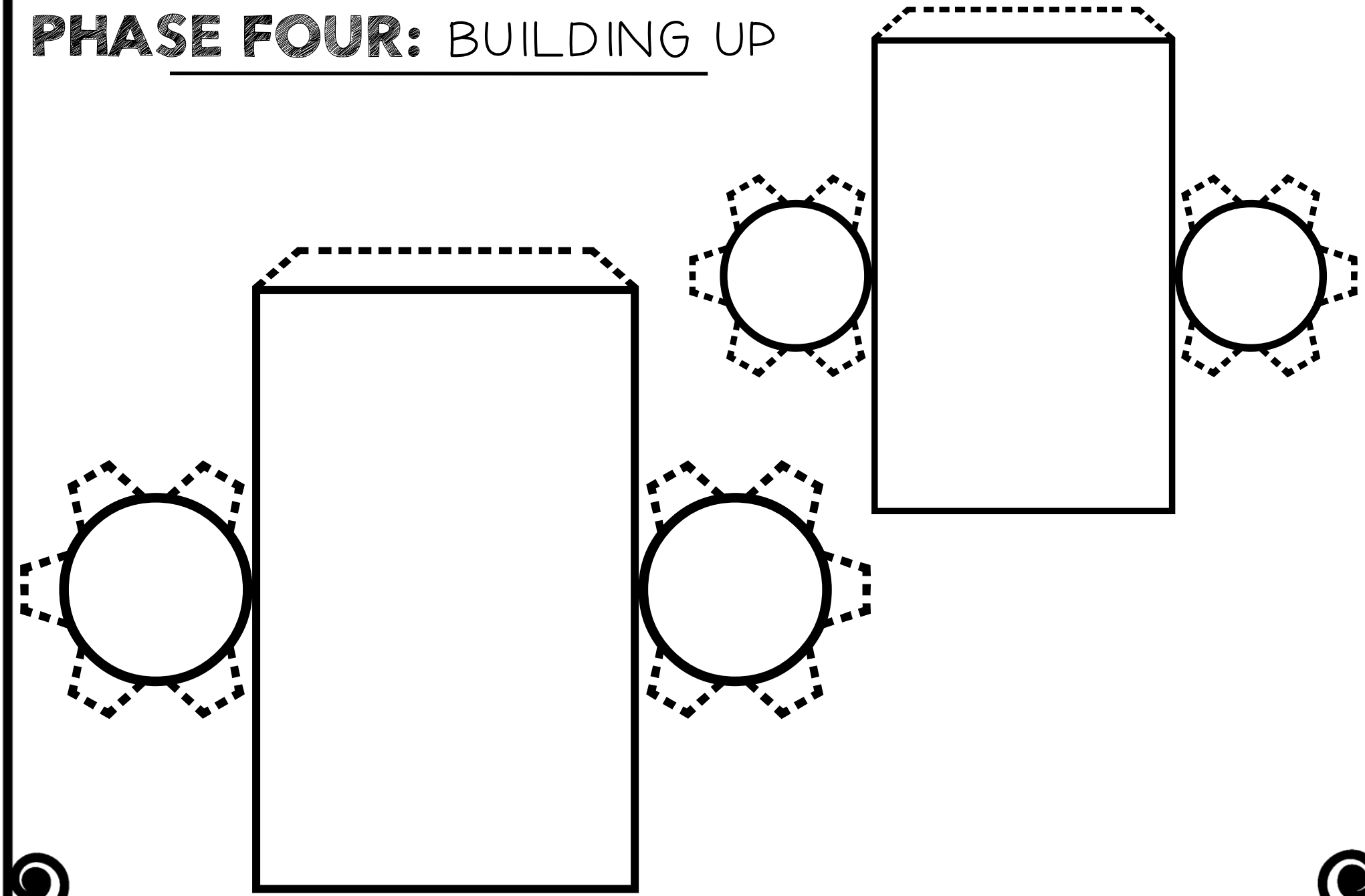

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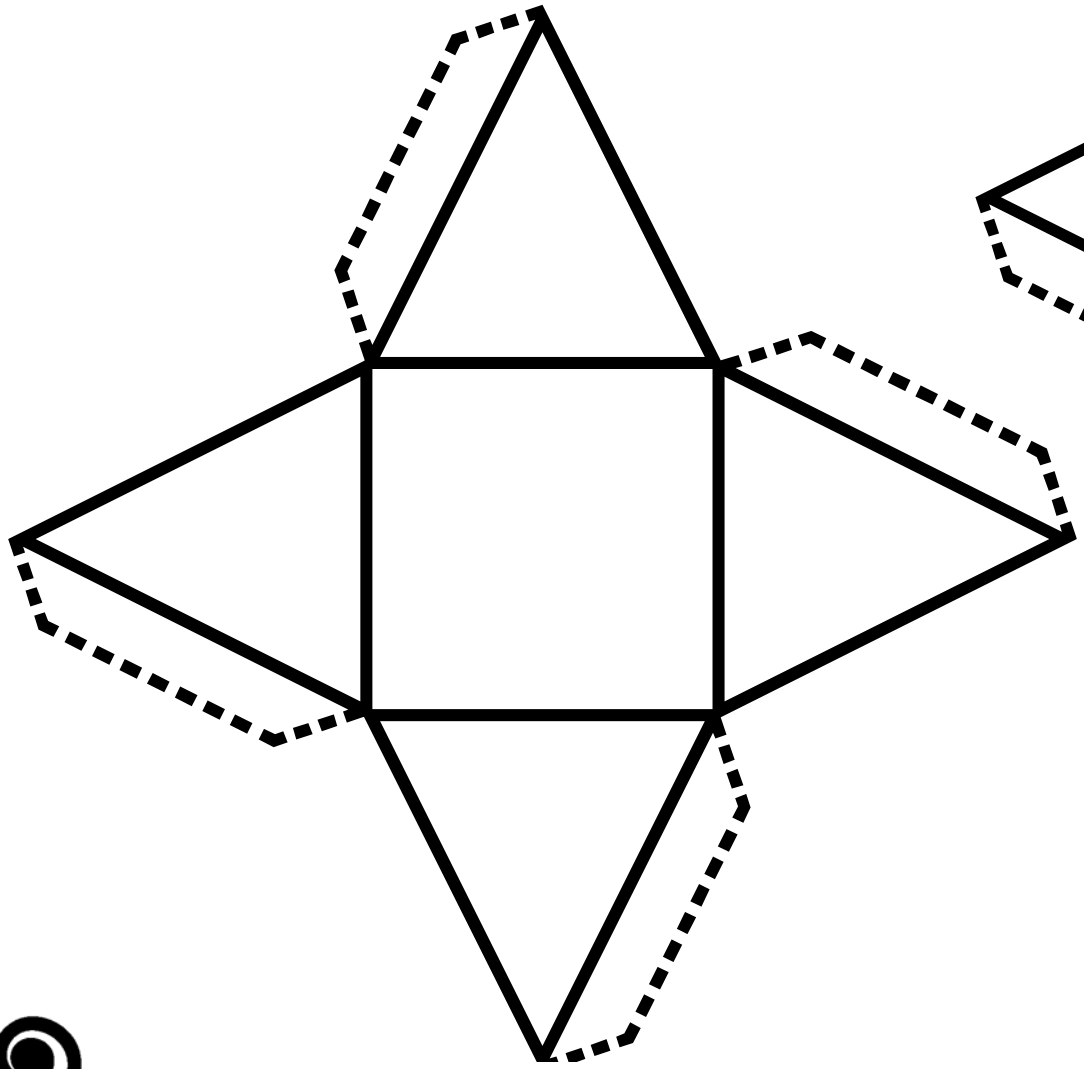
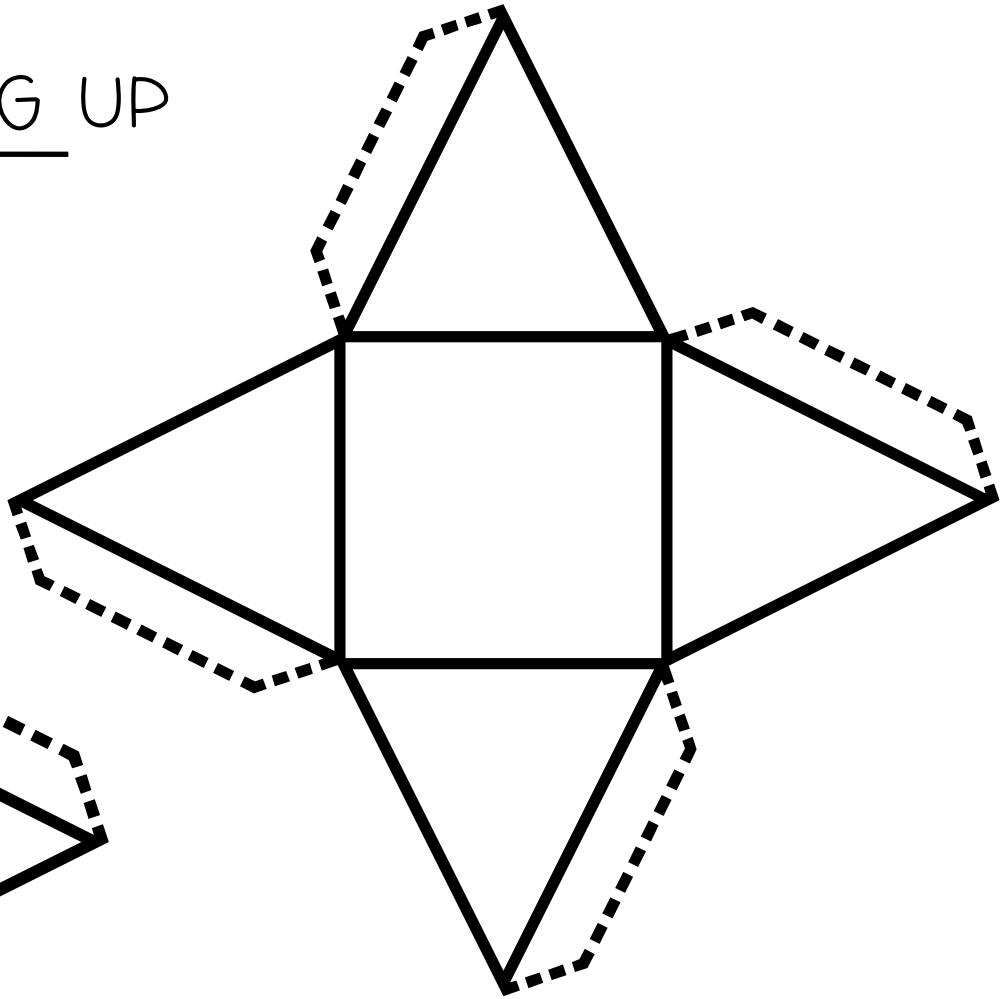
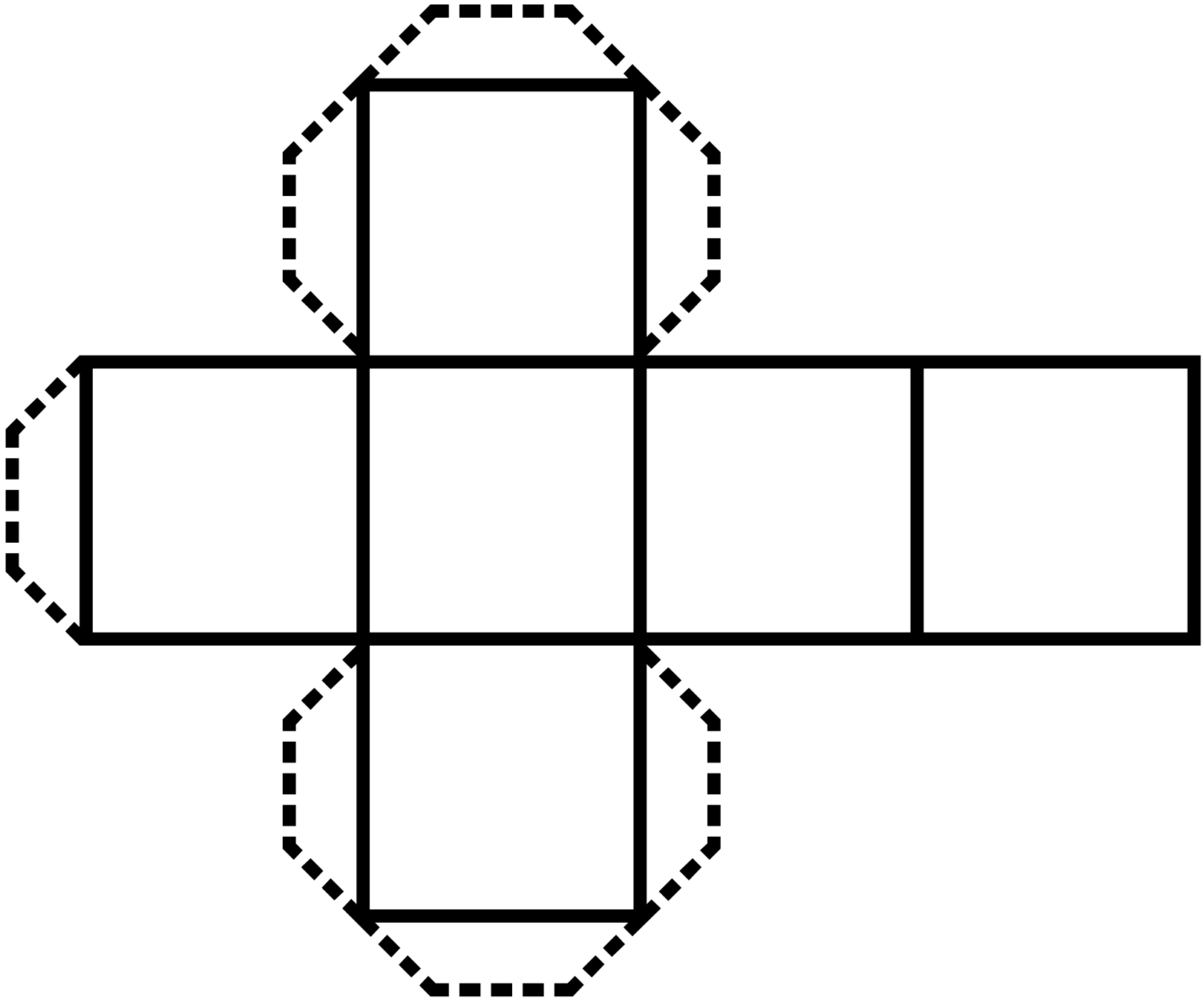
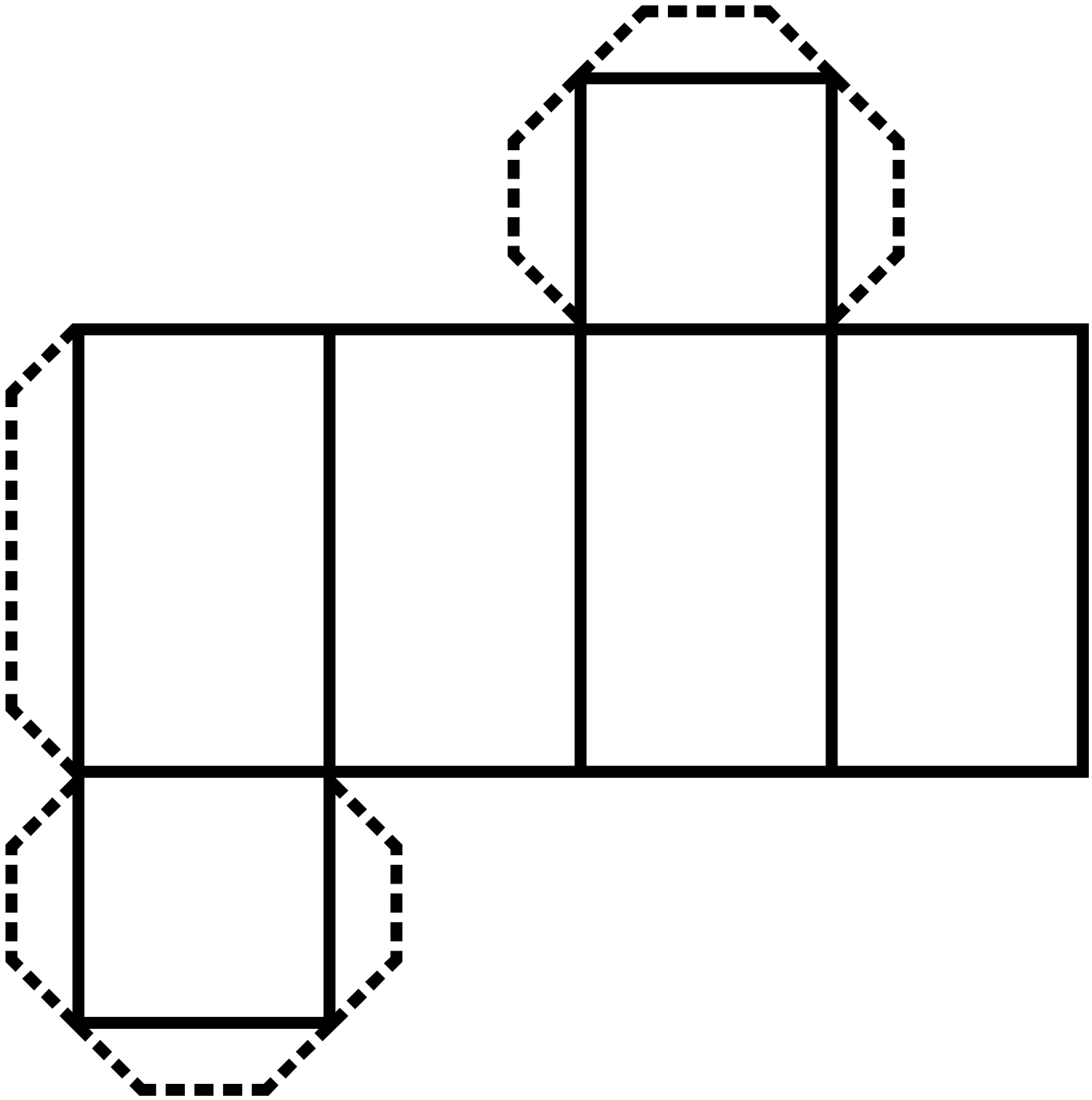




PHASE FOUR: BUILDING UP



PHASE FOUR: BUILDING UP



PHASE FIVE: ASSESSMENT

SELF ASSESSMENT

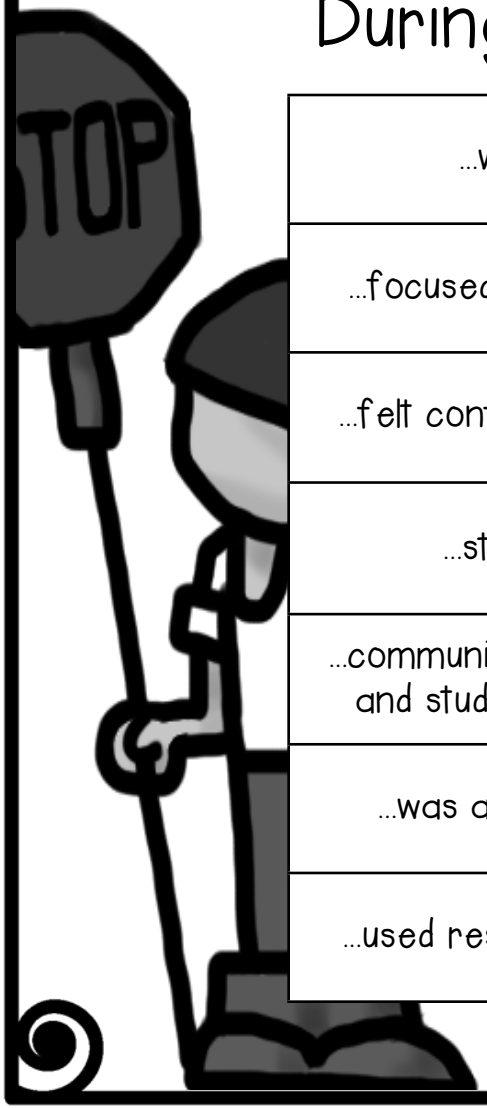
Now that you've finished Geometrocity, let's assess how well you think you did with the project. Answer each question by circling the numbers that fits best.

I know the geometry terms.	every single one	most of them	needed help with a couple	more practice needed
I was able to follow the directions.	all the time	most of the time	asked a friend	asked the teacher
Geometry is	great	good	okay	boring
What was the most difficult part of this project?				
I included many details in my work		YES	NO	
I did my best work.	excellent	good	fair	needs improvement
All my work is legible and neat	excellent	good	fair	needs improvement
My ideas were	awesome	good	average	I could do better
If I could add more to this project it would be to...				

PHASE FIVE: ASSESSMENT

SELF ASSESSMENT: INDEPENDENT WORK

Circle an answer for each statement below.



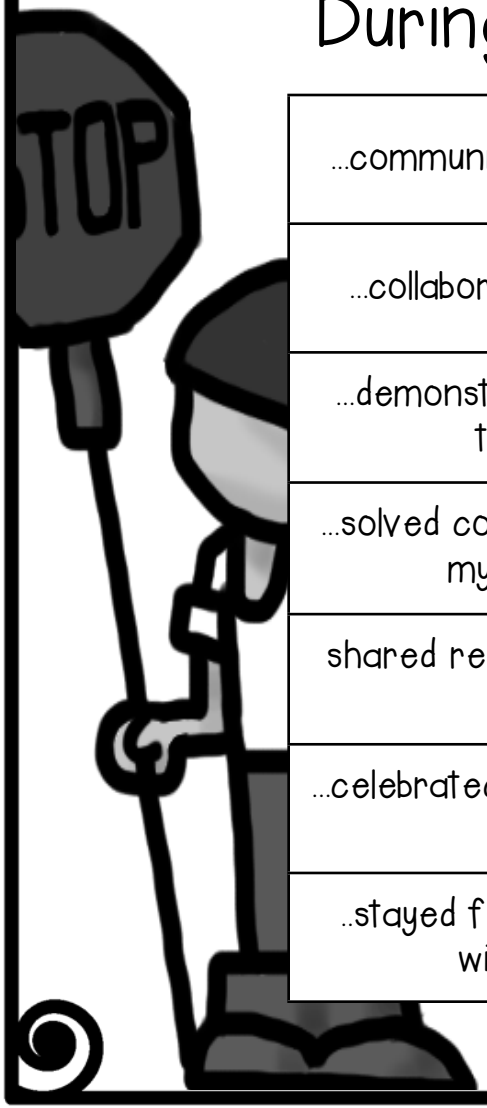
During this project I...

...worked hard	needs improvement	fair	good	excellent
...focused when I needed to	needs improvement	fair	good	excellent
...felt confident in my abilities	needs improvement	fair	good	excellent
...stayed on task	needs improvement	fair	good	excellent
...communicated with teachers and students appropriately	needs improvement	fair	good	excellent
...was a complex thinker	needs improvement	fair	good	excellent
...used resources to help me	needs improvement	fair	good	excellent

PHASE FIVE: ASSESSMENT

SELF ASSESSMENT: GROUP WORK

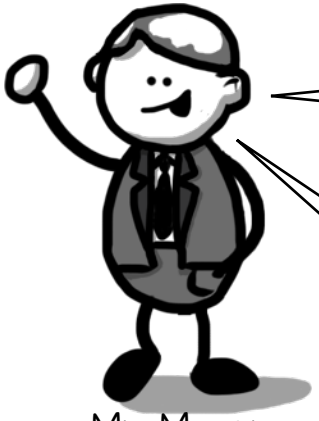
Circle an answer for each statement below.



During this project I...

...communicated with my team	needs improvement	fair	good	excellent
...collaborated with my team	needs improvement	fair	good	excellent
...demonstrated respect to all teammates.	needs improvement	fair	good	excellent
...solved complex problems with my teammates.	needs improvement	fair	good	excellent
shared responsibilities with my team.	needs improvement	fair	good	excellent
...celebrated great ideas with my team!	needs improvement	fair	good	excellent
..stayed focused and on task with my team.	needs improvement	fair	good	excellent

PHASE SIX: TOURISM



Mr. Mayor

Wow! The work you've done has just been incredible.

Now you get to run the city's Tourism Department, like it or not!

Mr. Mayor is correct! You'll be creating postcards that show off this amazing city. You also get to tell why this city is awesome!

Tourism Tony

Objective: Design a two-sided postcard to promote tourism in Geometrocity. One side will be a picture of your city's top tourist attraction. The other side will be a write-up describing why this city needs to be visited.

DIRECTIONS:

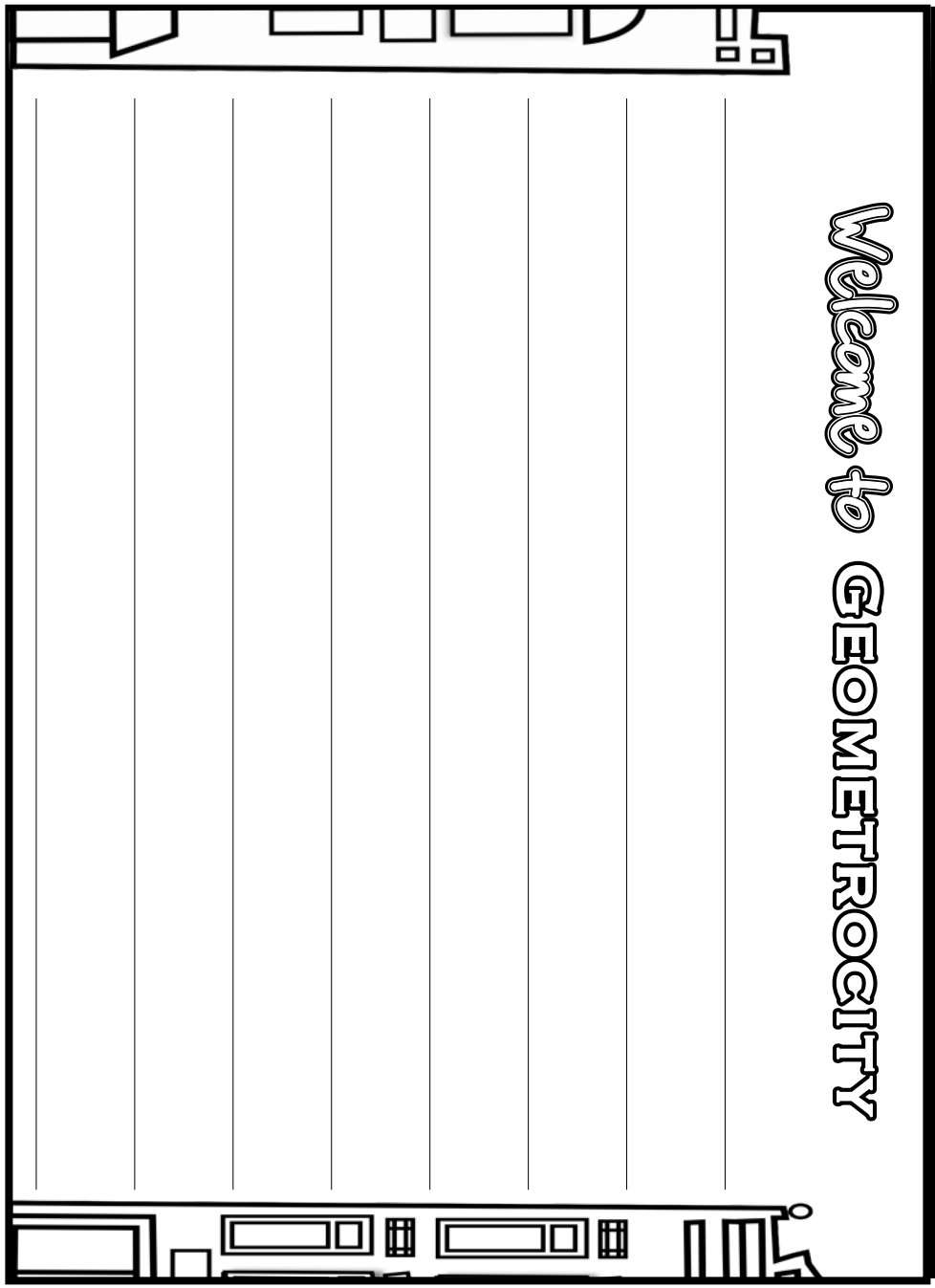
-One the next page you'll see a blank postcard. Start by picking (or creating) a tourist attraction that will draw people to your city. Think of sports teams, parks, zoos, incredible food, and the theaters. There are tons of choices.

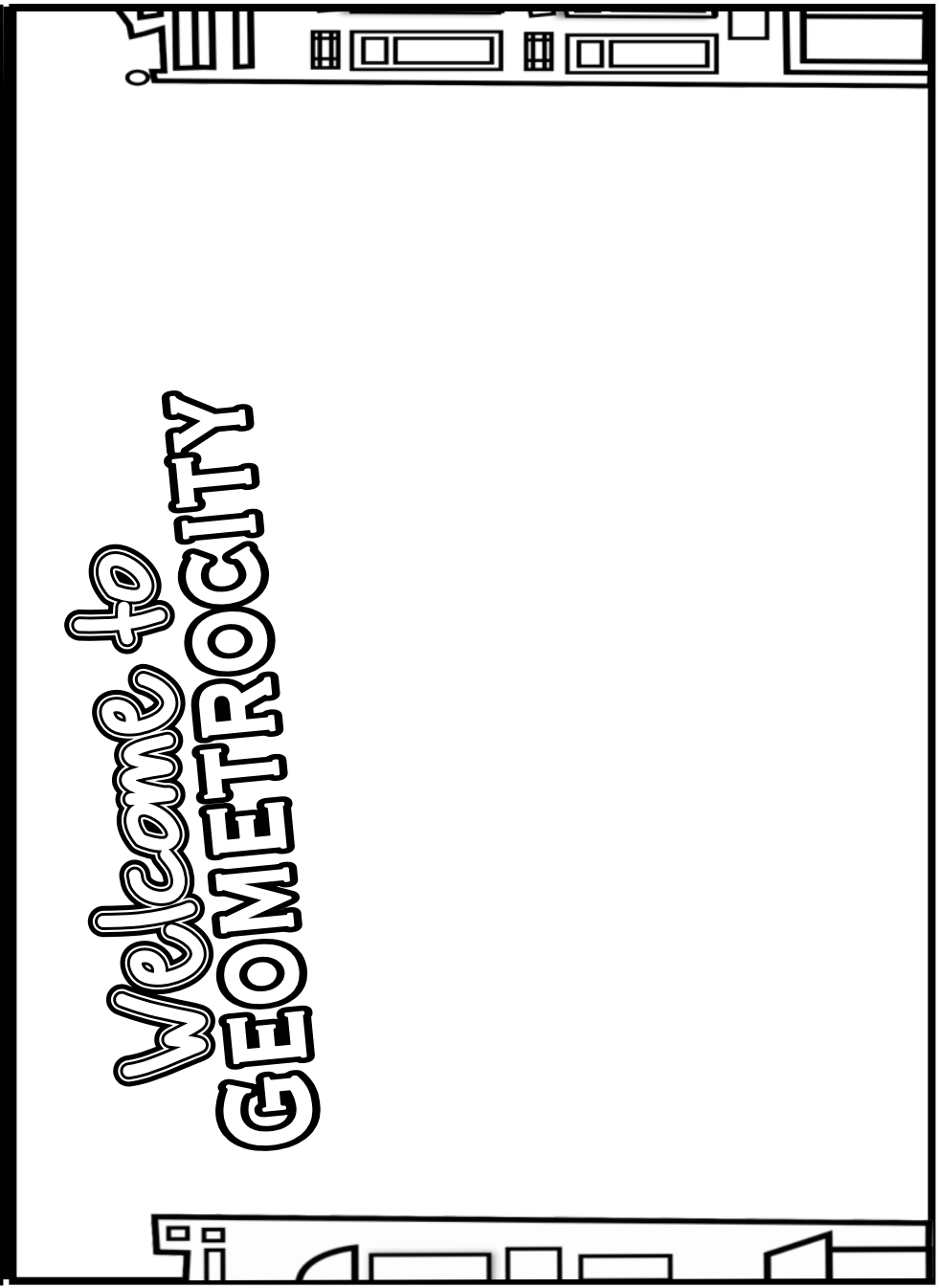
-Next, you will create a cover. It needs to be eye-catching with lots of color and detail.

-Finally, you'll write a summary of how great your city is to persuade people to come and visit.

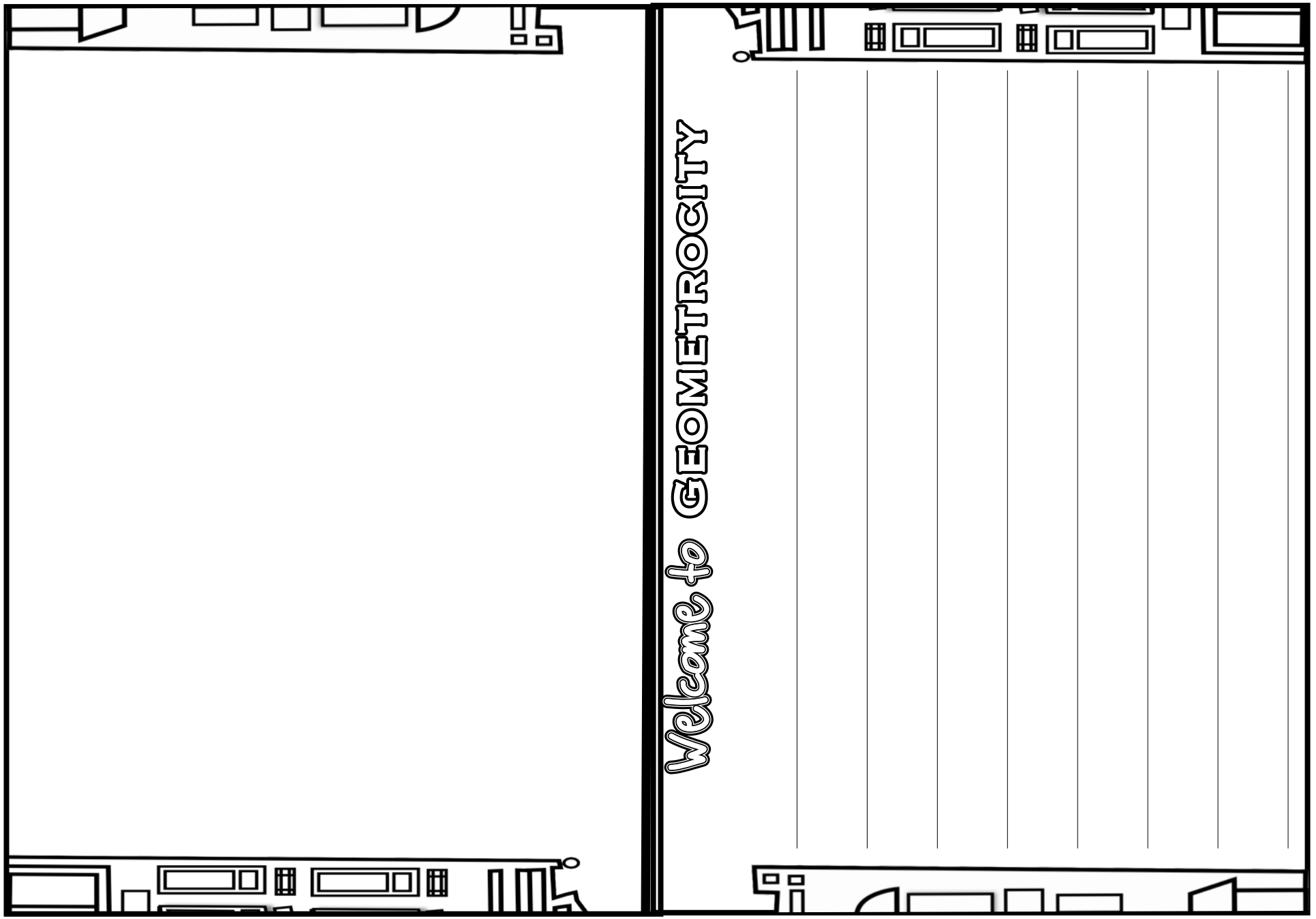
-CHALLENGE: In your summary use at least 5 geometry vocabulary words to describe how great the city is. Example: For example, thousands of symmetrical pieces of glass make the Willis Tower such an amazing building to see.

PHASE SIX: TOURISM





PHASE SIX: TOURISM



PHASE SEVEN: CHALLENGE

Urban Planning

Everyone likes a good challenge! Pick one or two that you'd like to try. If you're successful, you might just get the key to the city.

Create-A-Quiz

Write a 10 question quiz on your city. All questions should be able to be answered by looking at your city. Use some ideas during this project to help create great questions.

Public Transit Railways

Create 3D railways that runs through 1-2 sections of your city.
This will require you to make a railway, pillars, and a couple of stops along the way, along with a train.

Index Card

Using some index cards create your own type of nets that can be turned into buildings in your city.
Don't forget to add color and details. The possibilities are endless.

The Super Highway

Develop and build a raised super highway around your city. Most city highways are above ground so smaller roads can travel below. You will be making the same thing. Don't forget the on and off ramps too!

The Subway

Design a subway system. Subways run below ground, so you'll need to grab more graphing paper and design a map that would match the ground level. Welcome to the Underground (it is the subway in England).

PHASE SEVEN: Create-A-Quiz

Write a 10 question quiz on your city. All questions should be able to be answered by looking at your city. Use some ideas during this project to help create great questions.

questions	answers
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

PHASE TWO: Design and Build

Differentiated Design and Build.

The next nine pages are from Phase Two: Design and Build.
They are the same sections, but you will notice they don't have any geometry terms in the column. They've been left blank so that you or the students may fill them in with vocabulary words that they would like to insert into their city.

All students work at different levels and some students may only know a smaller subset of vocabulary words. That's why on the following page there will be a chart of geometry vocabulary words that you or students may choose to be inserted.

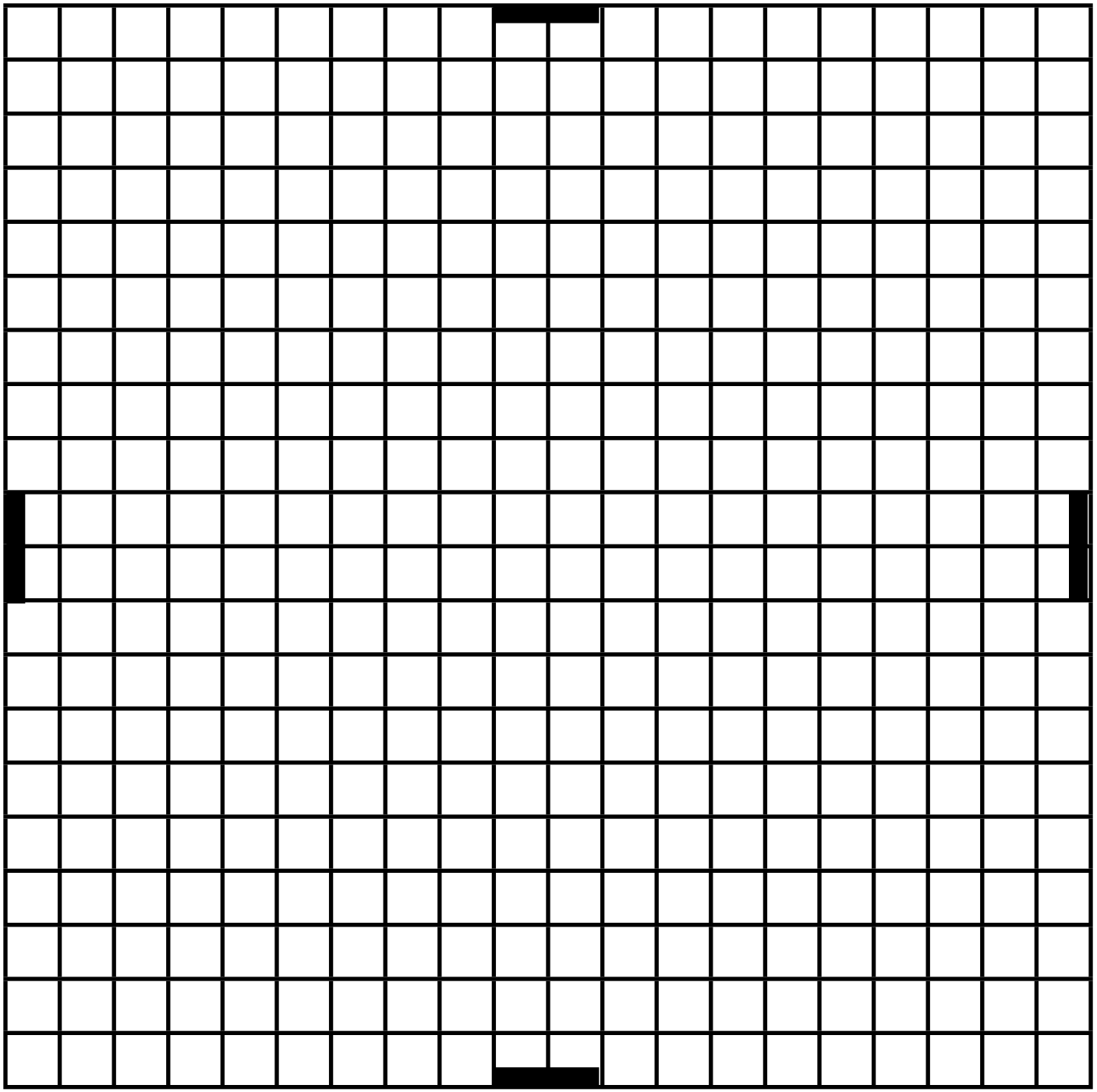
Students will them write the selected terms and continue following the plan as scheduled to create their city.

PHASE TWO: Design and Build

Pick Your Vocabulary

point	angle	polygon	half circle
plane	acute angle	right angle	radius
line	obtuse angle	pentagon	hexagon
parallel lines	square	rotation	rhombus
perpendicular lines	triangle	reflection	trapezoid
circle	isosceles triangle	symmetry	parallelogram
ellipse	scalene triangle	coordinates	kite
arc	rectangle	congruent	octagon

GEOMETROCITY

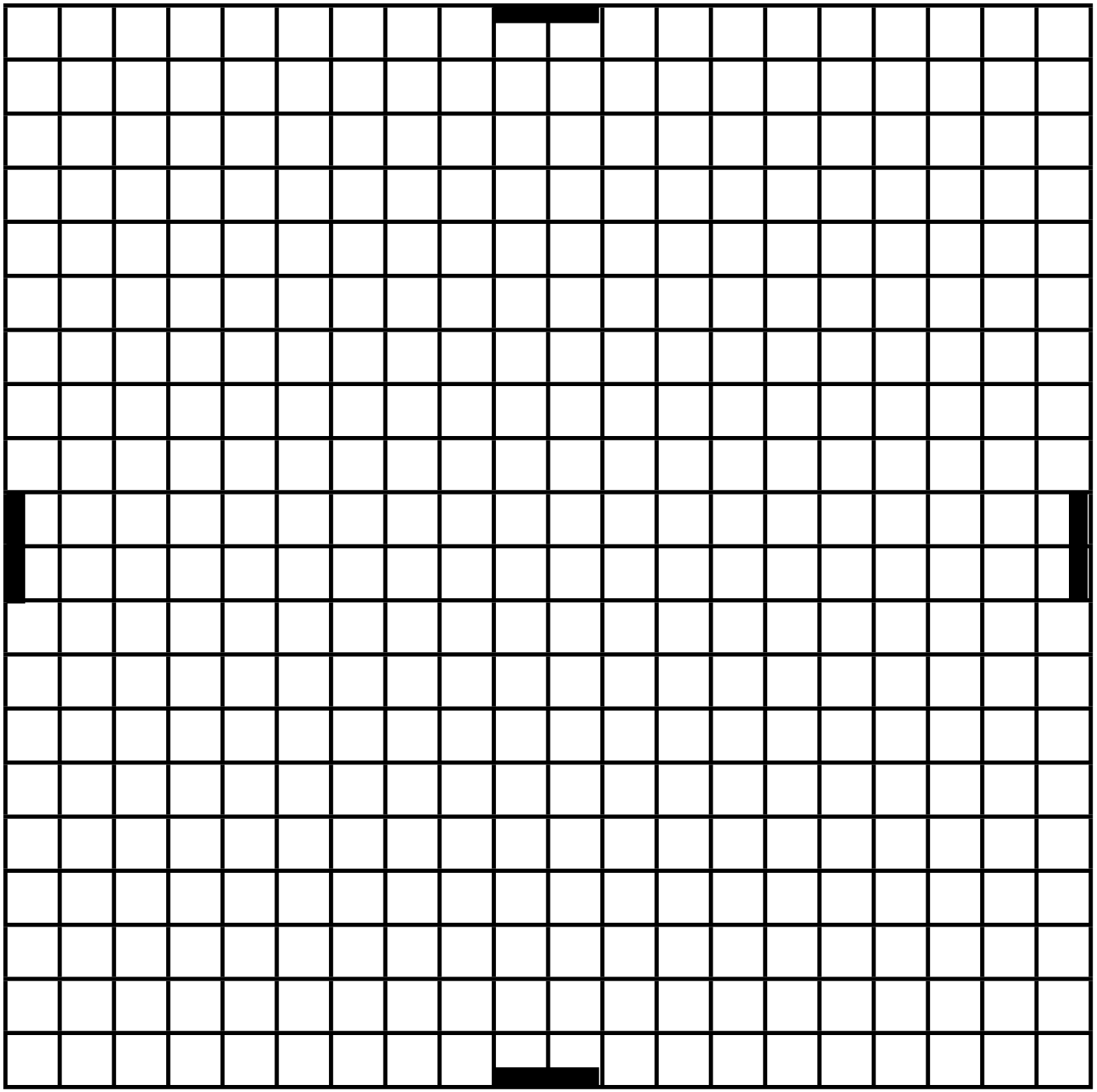


DOWNTOWN

Include these elements in your design.

	OFFICE
	BANK
	PARKING GARAGE
	SKYSCRAPER
	HOTEL
	RESTAURANT

GEOMETROCITY

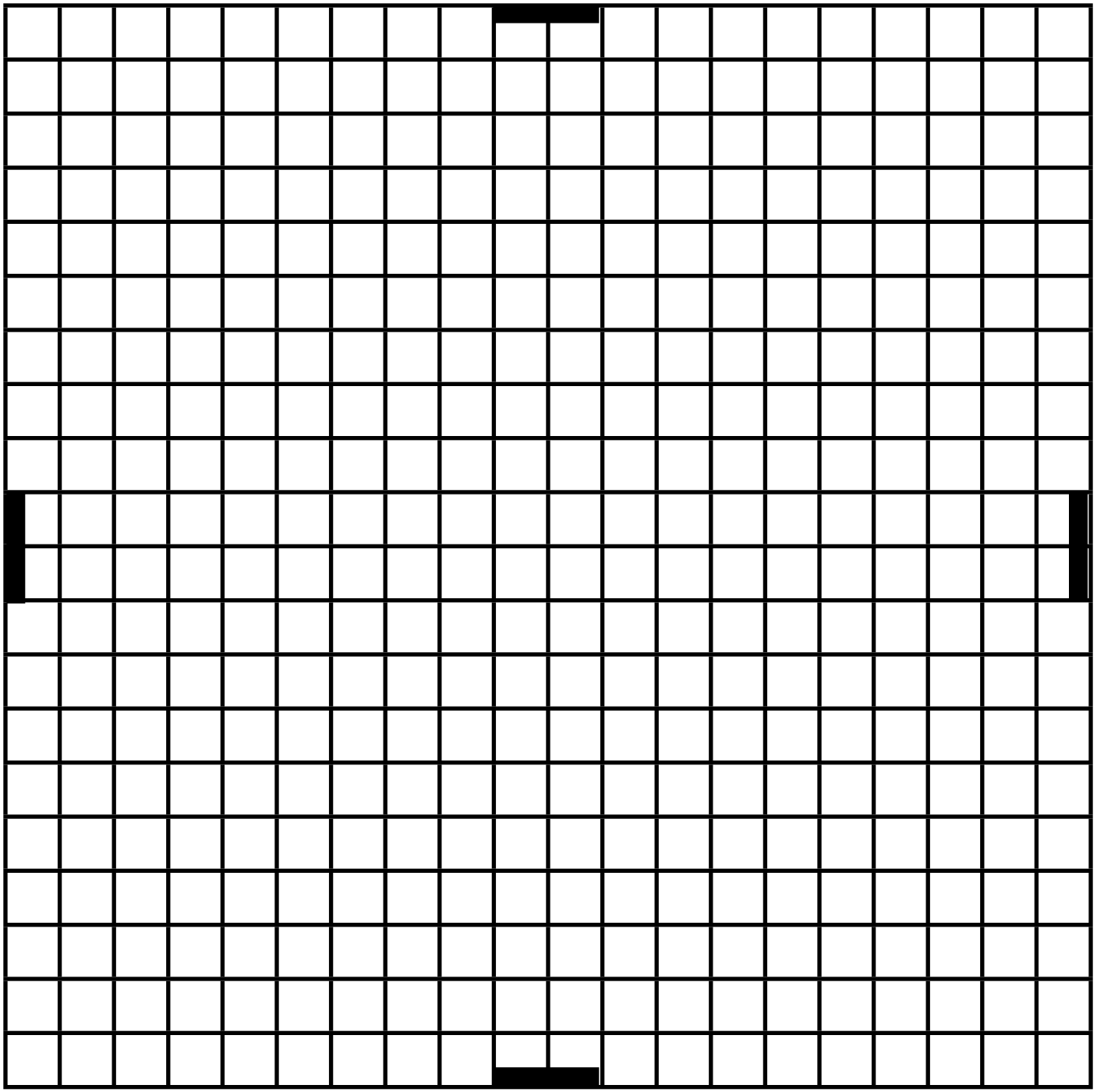


SUBURBS

Include these elements in your design.

	SHOPPING CENTER
	GROCERY STORE
	SCHOOL
	GAS STATION
	NEIGHBORHOOD
	PARK

GEOMETROCITY

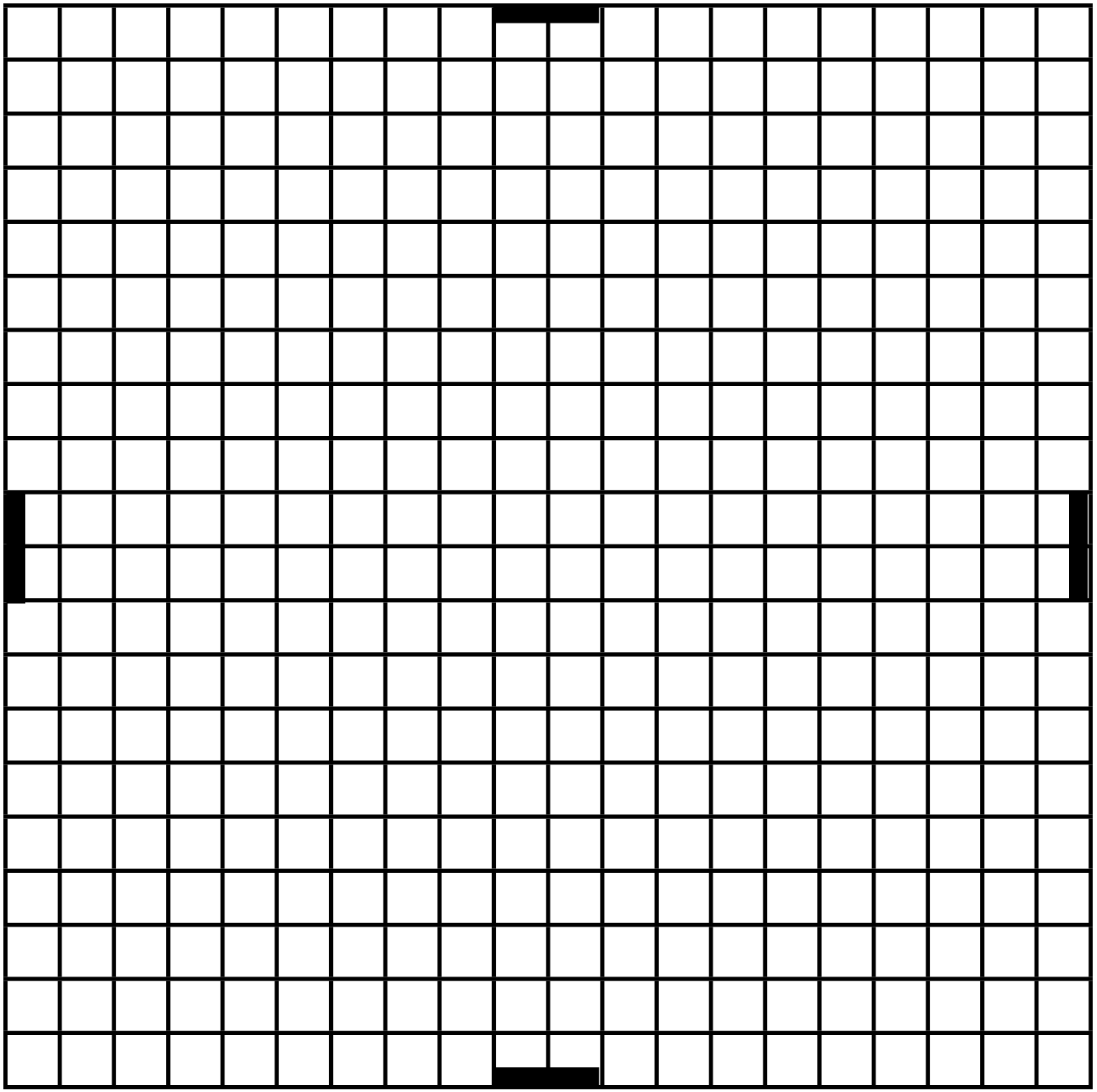


CITY HALL

Include these elements in your design.

	JAIL
	COURT HOUSE
	ATTORNEY'S OFFICE
	PARKING LOT
	SUBWAY ENTRANCE
	LIBRARY

GEOMETROCITY

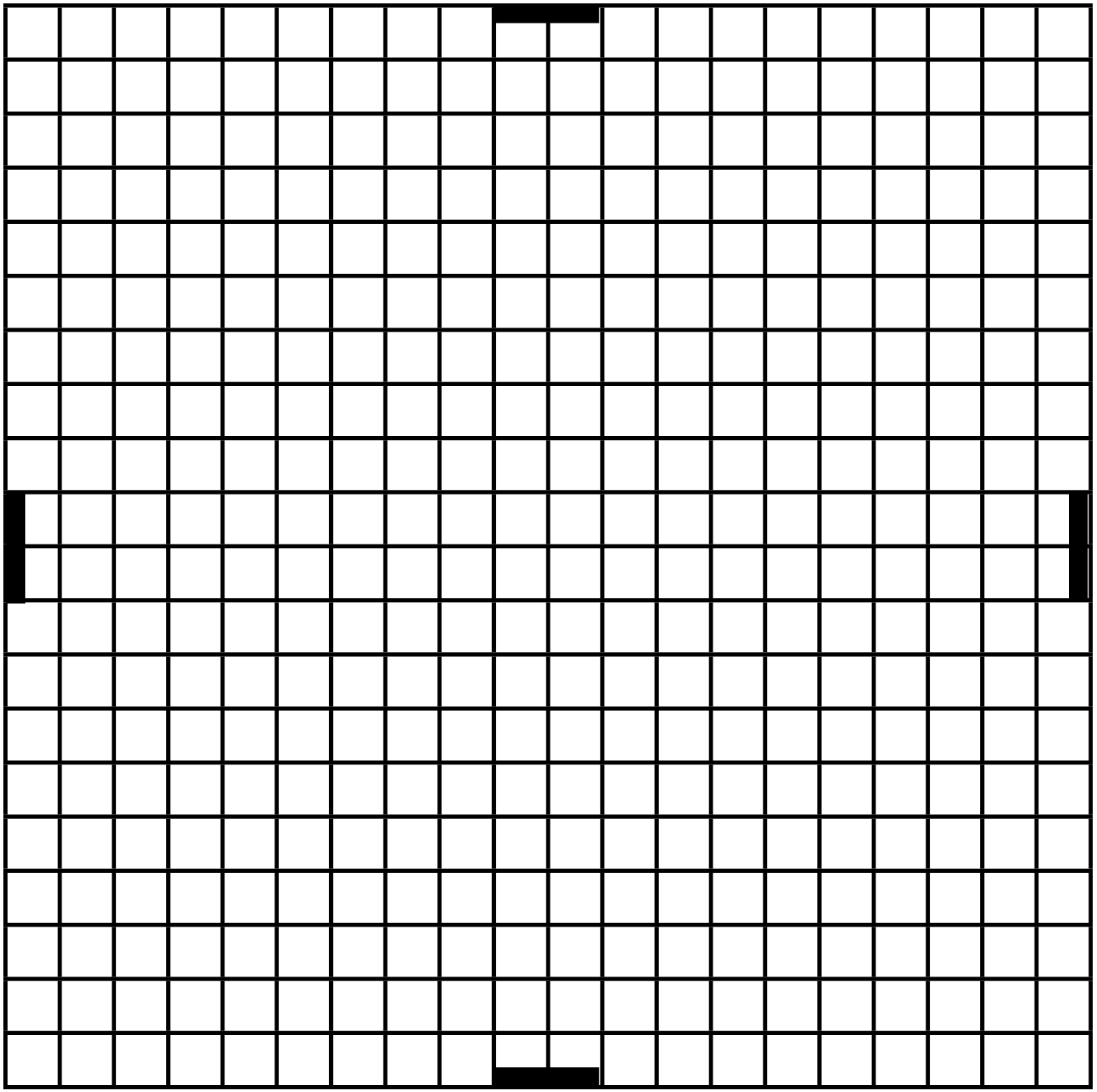


INDUSTRIAL PARK

Include these elements in your design.

	FACTORY
	WAREHOUSE
	GATED EMPTY LOT
	RECYCLING DEPOT
	MANUFACTURING PLANT
	SUBWAY ENTRANCE

GEOMETROCITY

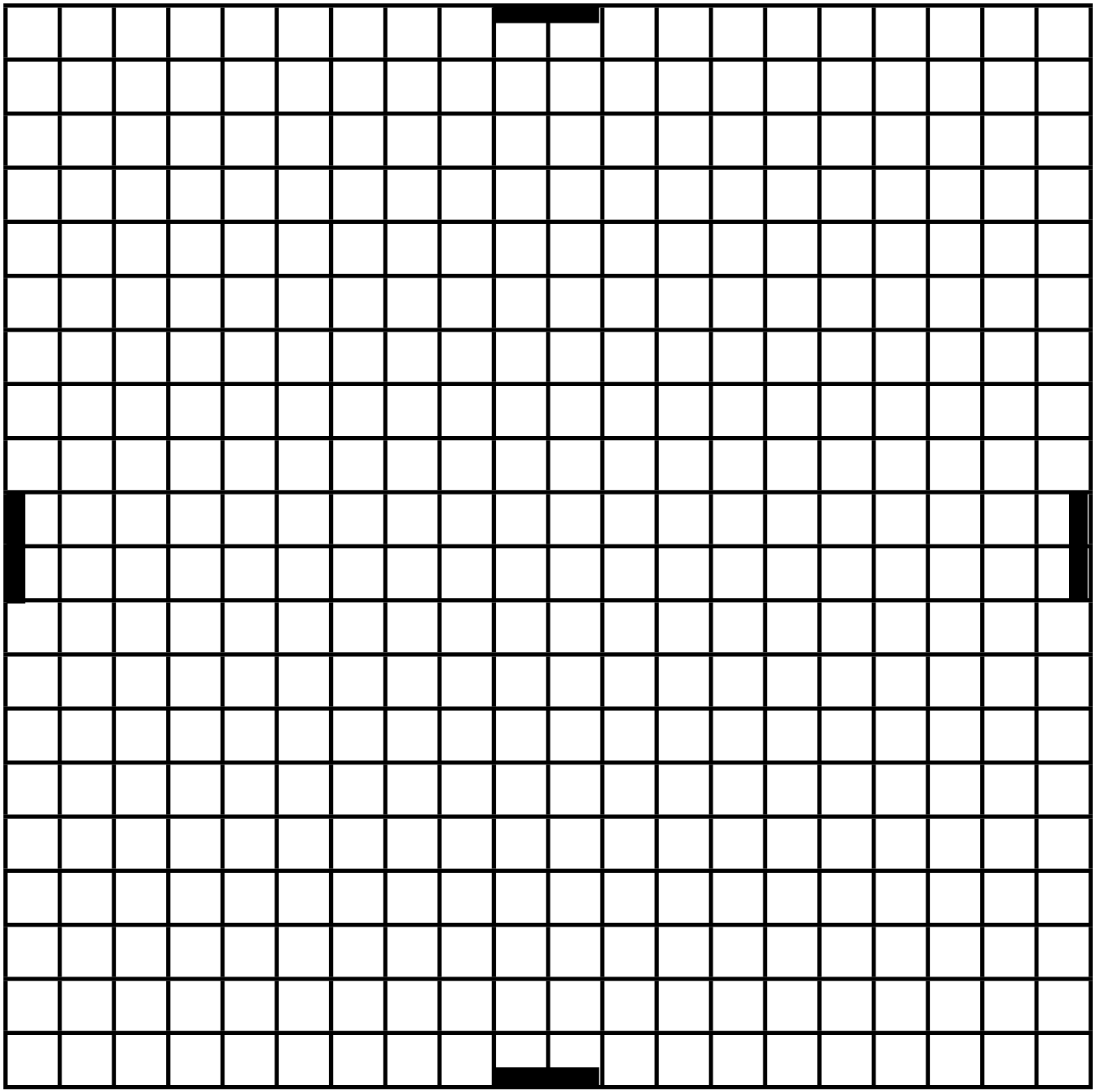


PUBLIC WORKS

Include these elements in your design.

	POLICE STATION
	FIRE HOUSE
	CITY WATER
	TRAIN STATION
	SEWAGE TREATMENT FACILITY
	POST OFFICE

GEOMETROCITY

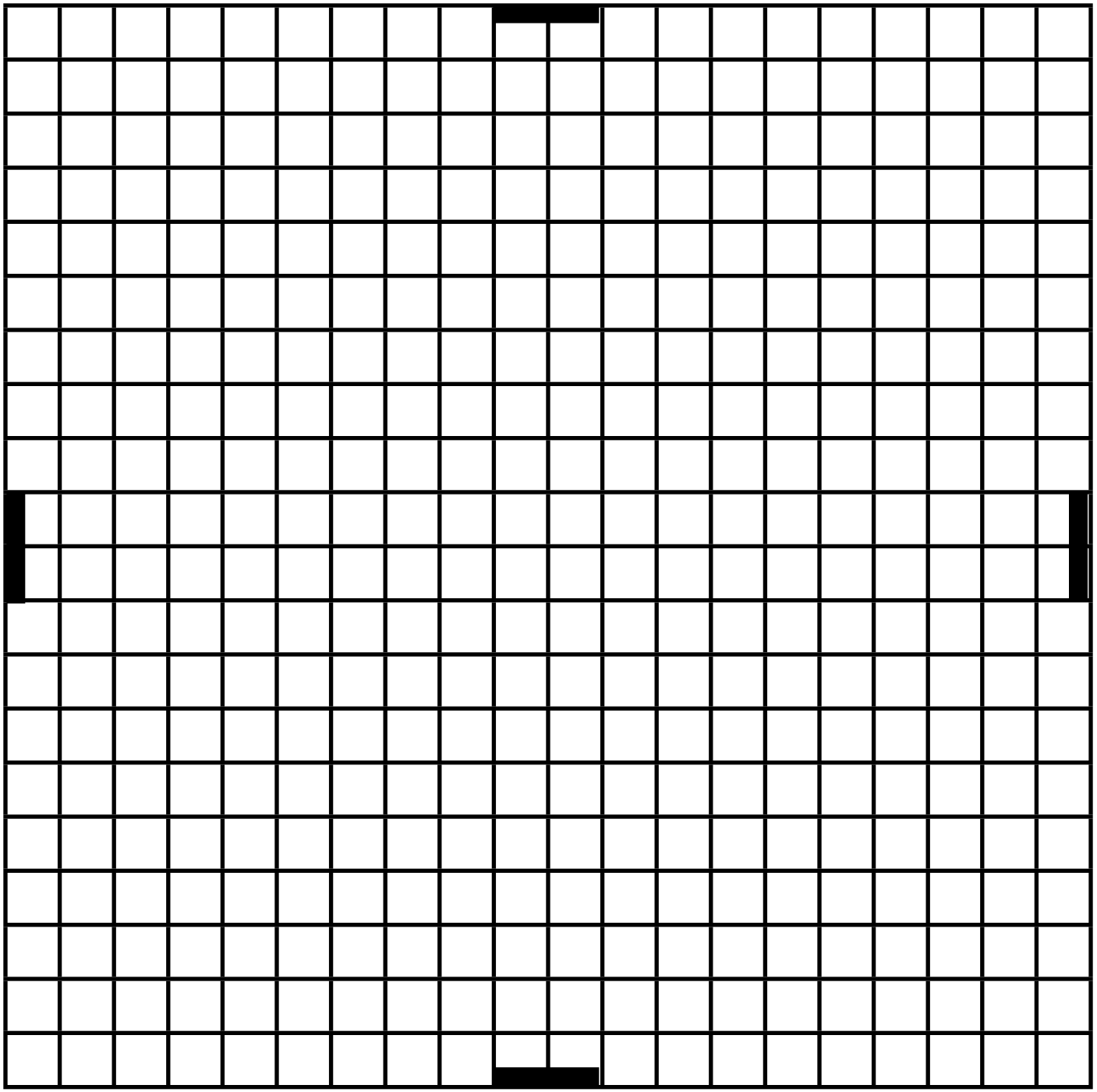


BUSINESS DISTRICT

Include these elements in your design.

	BANK
	HOTEL
	5 TAXIS
	PAWN SHOP
	OFFICE BUILDING
	COFFEE SHOP

GEOMETROCITY

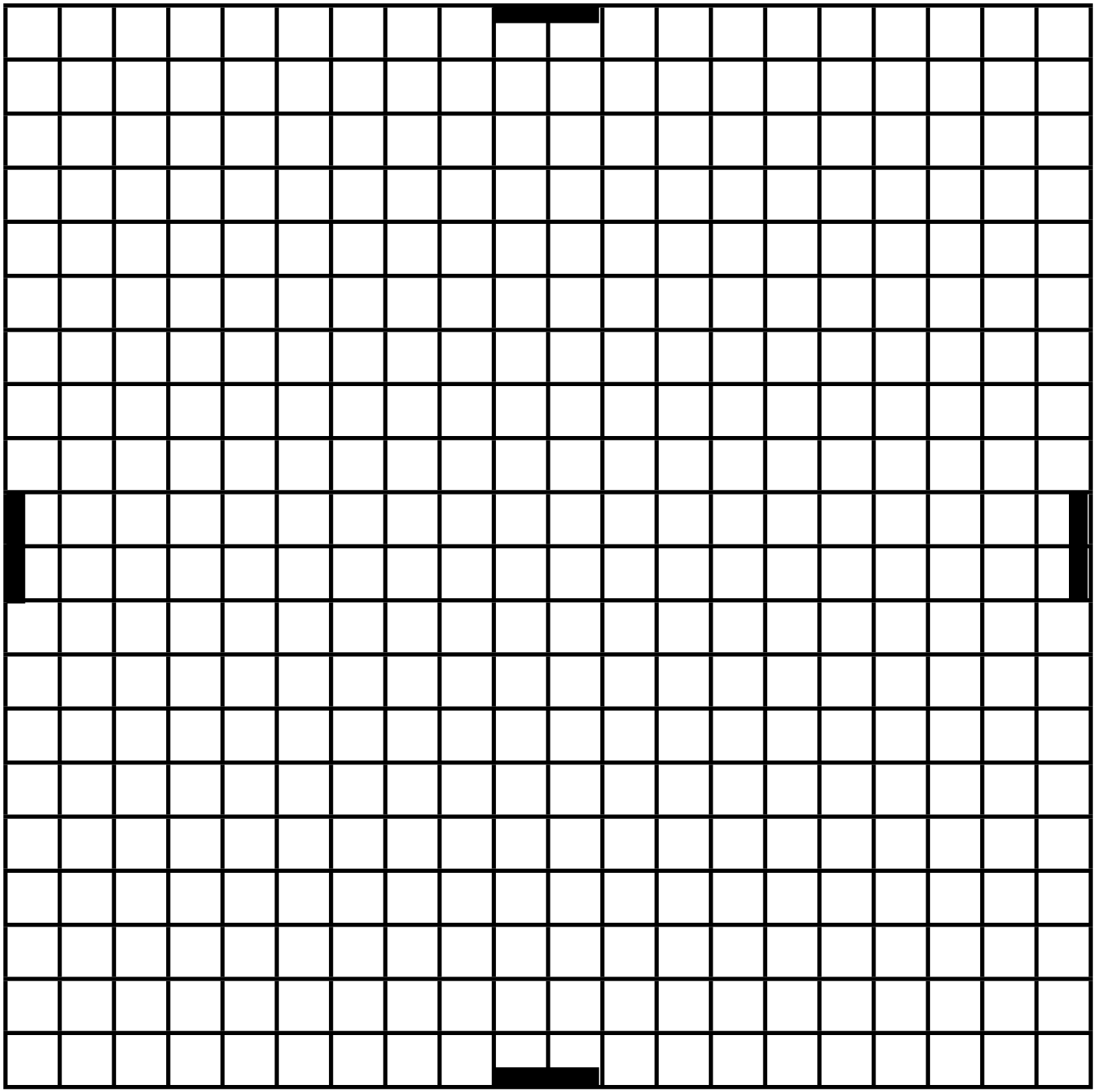


PARK DISTRICT

Include these elements in your design.

	BASEBALL FIELD
	PARK
	FOREST PRESERVE
	PARK
	POND

GEOMETROCITY

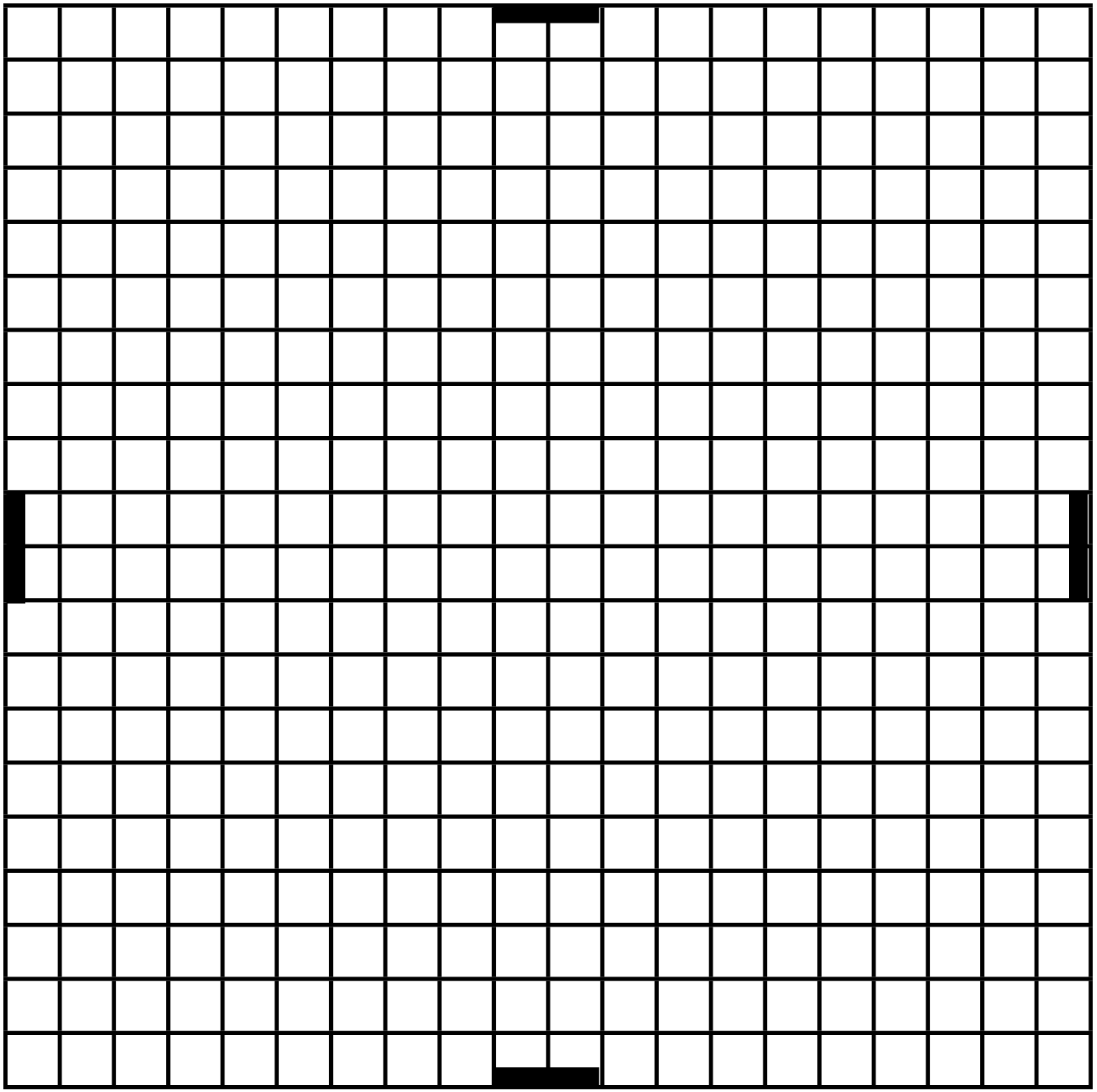


CITY LIVING

Include these elements in your design.

	BEAUTY SHOP
	3 APARTMENT BUILDING
	LAUNDRY MAT
	DOG PARK
	GROCERY STORE
	FAST FOOD EATERY

GEOMETROCITY

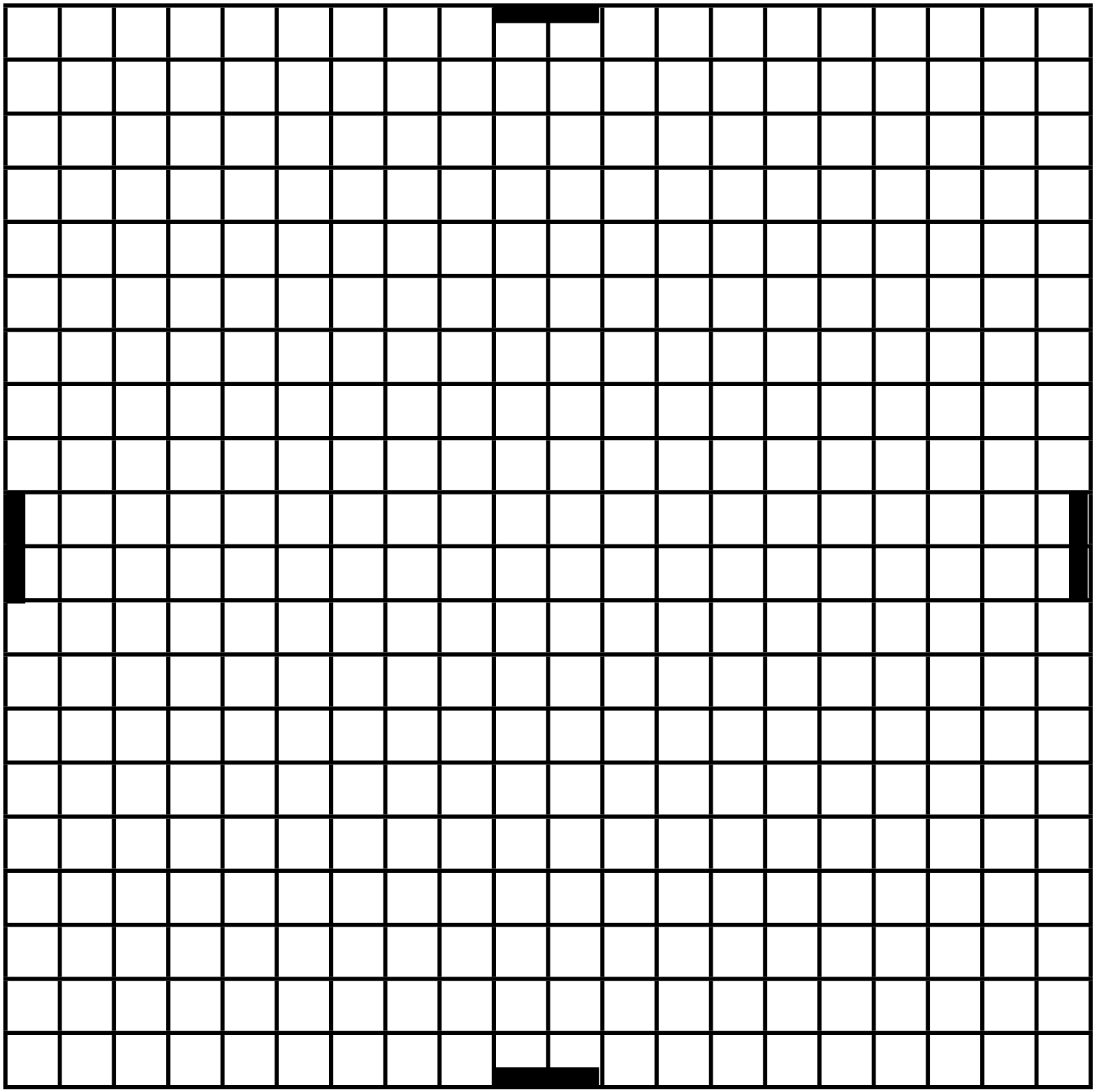


TOURIST ATTRACTION

Include these elements in your design.

- MUSEUM
- OPERA HOUSE
- SPORTS ARENA
- ZOO
- AQUARIUM

GEOMETROCITY



ENTERTAINMENT

Include these elements in your design.

	MOVIE THEATER
	MUSEUM
	3 RESTAURANTS
	3 ATM MACHINES
	DANCE HALL

DIGITAL: Divide & Conquer

TPT

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