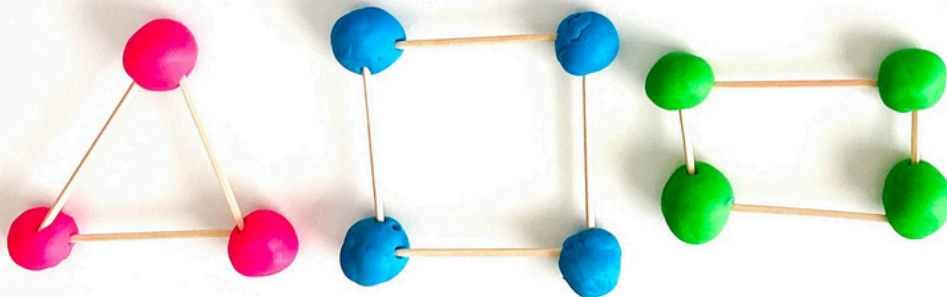


# STEM starter kit



Thank you for your purchase! I hope that our Playdough to Plato family of websites helps you save time, stay inspired, and give EVERY student bigger results.

*XO, Malia*

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- Use this teaching tool for one classroom.
- Upload this file to your classroom Google Drive account or other storage location.

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- Sell or in any way profit from this electronic file.
- Store or distribute this file in any other website or another location where other people may download it. ex: Dropbox, Facebook groups, 4Shared

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# Hello!



You just got your hands on the Free STEM Starter Kit, and I couldn't be more excited for you. If you've ever thought, STEM sounds great, but I don't have time for all that prep—this is going to change everything.

Here's the truth: STEM doesn't have to be complicated. You don't need fancy robots or expensive kits. You can **start right now** with just two things you probably already have—playdough and toothpicks!

## What's About to Happen:

Your students are going to...

- ✓ Get hands-on with building 2D and 3D shapes
- ✓ Strengthen problem-solving and critical thinking skills
- ✓ Work together like real engineers (without even realizing they're learning!)

And you? You're going to see how **easy** STEM can be—no stress, no complicated materials, just simple, engaging fun that builds real skills.

So grab those supplies, dive into the challenge, and watch your students light up with excitement. I'll be back at the end of this kit with your next steps. Trust me—you won't want to miss them.

You've got this!

*Mafia Hollowell*  
thestemlaboratory.com  
hello@thestemlaboratory.com

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# directions

## SKILL-

Designing, building, abstract thinking, trial and error, 2D and 3D shape recognition, shape characteristics.

## PREP-

Print the challenge cards on cardstock to give them extra durability. Cut along the faint grey lines to separate the pieces. If you'll be using the cards in a classroom, you will want to laminate for reuse.

NOTE: This is a great chance to differentiate! For new builders, work on a couple of the 2-dimensional shapes at a time. For more advanced builders, tackle ALL of the 2-dimensional shapes and/or work on the 3-D version.

Punch a hole in the upper left hand corner of each card and hook them together with a binder ring.

Print one record sheet for each child.

Grab enough toothpicks and playdough for each student to complete the activity. (You could also mix it up by using craft sticks or pretzel sticks instead of toothpicks and marshmallows or gumdrops in lieu of playdough.)

Grab a vis-a-vis pen for children to write the number of vertices and sides on each card.

## PLAY-

Children pick up one card at a time and use the toothpicks and playdough to build the shape.

Then they count the shapes' vertices and sides and write the numbers on the card.

After building the shapes, students copy their answers onto the record sheet.

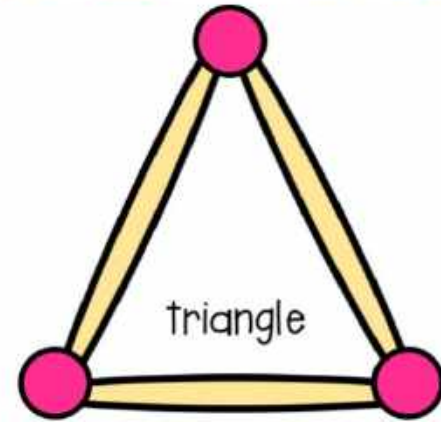
Set 1

**2D SHAPES**

# Toothpick Shapes



A

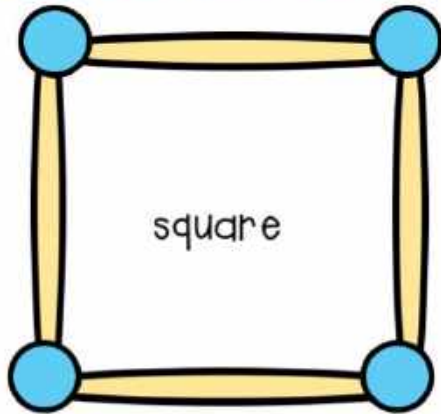


SIDES

VERTICES

© Playdough to Plato

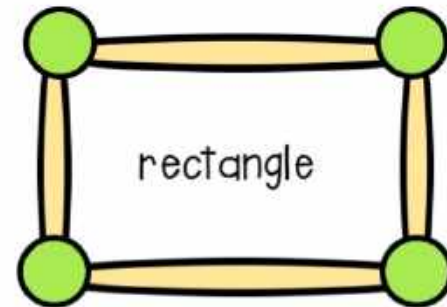
B



SIDES

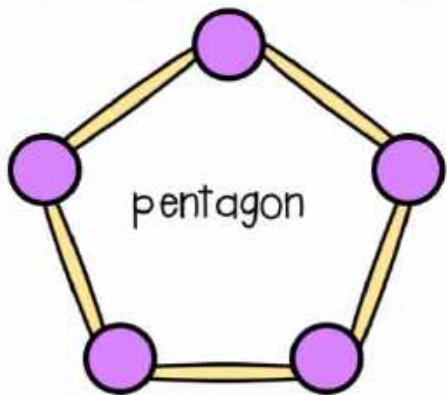
VERTICES

C



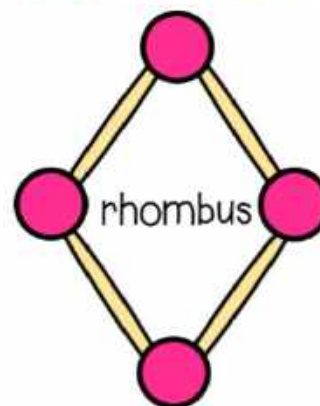
SIDES

VERTICES

**D**

SIDES

VERTICES

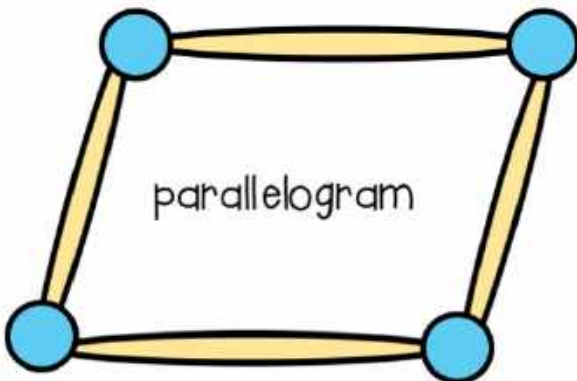

**E**

SIDES

VERTICES

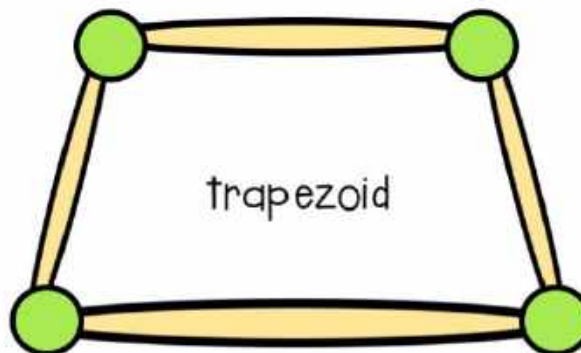


© Playdough to Plato

**F**

SIDES

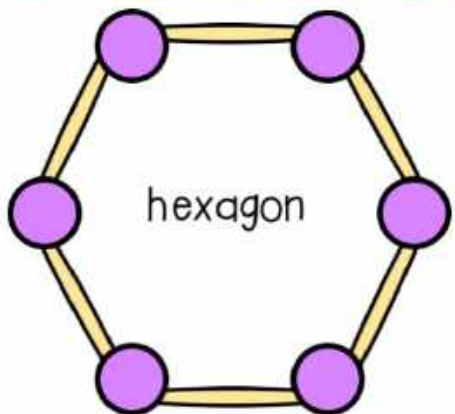
VERTICES


**G**

SIDES

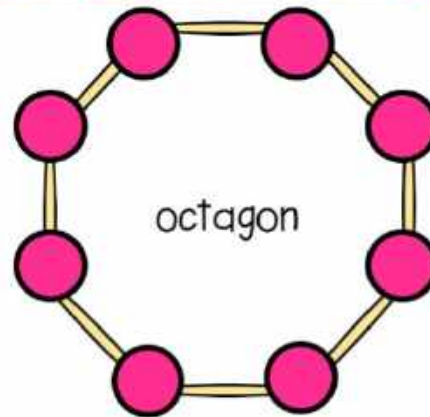
VERTICES

H



SIDES	VERTICES
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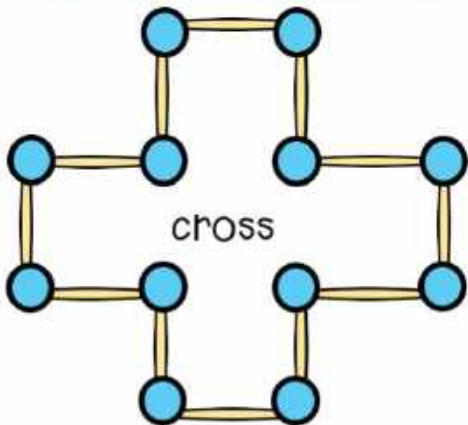
I



SIDES	VERTICES
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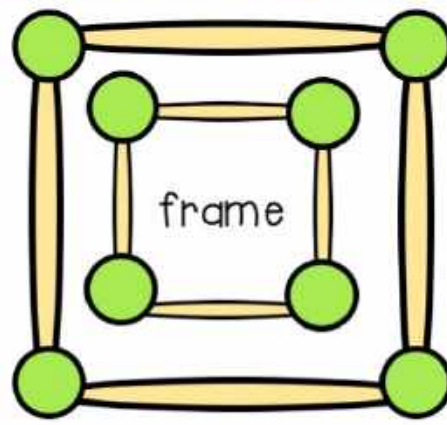
© Playdough to Plato

J



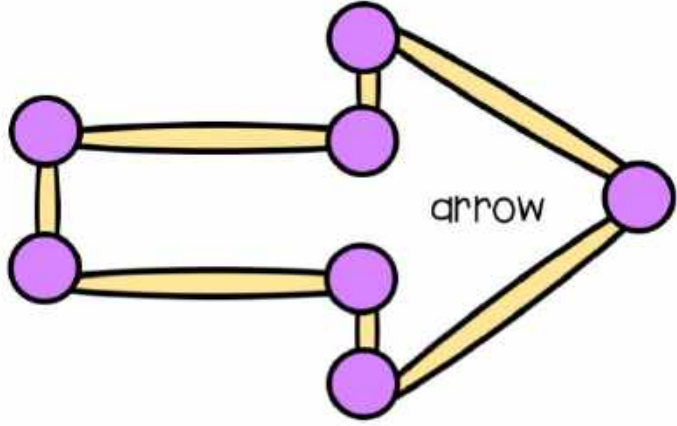
SIDES	VERTICES
<input type="text"/>	<input type="text"/>

K



SIDES	VERTICES
<input type="text"/>	<input type="text"/>

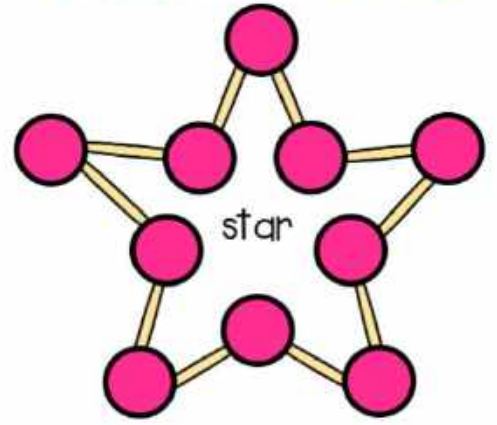
L



SIDES	VERTICES
<input type="text"/>	<input type="text"/>

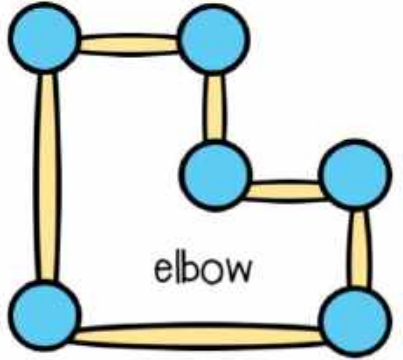
© Playdough to Plato

M



SIDES	VERTICES
<input type="text"/>	<input type="text"/>

N



SIDES	VERTICES
<input type="text"/>	<input type="text"/>

Name \_\_\_\_\_

# 2D toothpick SHAPES

Build each shape and then draw it below. Label the number of vertices and sides it has when you are finished.




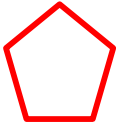

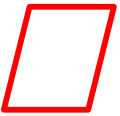
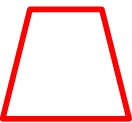
DRAW THE SHAPE	NUMBER OF SIDES	NUMBER OF VERTICES
A.		
B.		
C.		
D.		
E.		
F.		
G.		

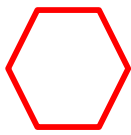
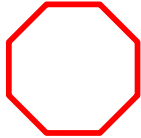
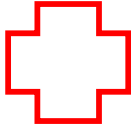
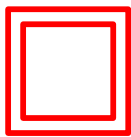
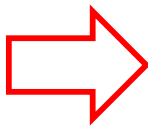

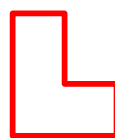
DRAW THE SHAPE	NUMBER OF SIDES	NUMBER OF VERTICES
H.		
I.		
J.		
K.		
L.		
M.		
N.		

Name \_\_\_\_\_ ANSWER KEY

# 2D toothpick SHAPES

Build each shape and then draw it below. Label the number of vertices and sides it has when you are finished.

DRAW THE SHAPE	NUMBER OF SIDES	NUMBER OF VERTICES
A. 	3	3
B. 	4	4
C. 	4	4
D. 	5	5
E. 	4	4
F. 	4	4
G. 	4	4

DRAW THE SHAPE	NUMBER OF SIDES	NUMBER OF VERTICES
H. 	6	6
I. 	8	8
J. 	12	12
K. 	8	8
L. 	7	7
M. 	10	10
N. 	6	6

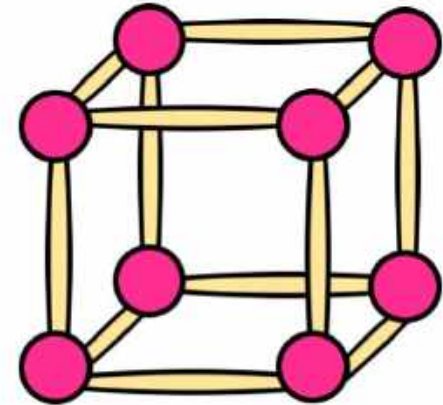
Set 2

**3D SHAPES**

# Toothpick Shapes



A



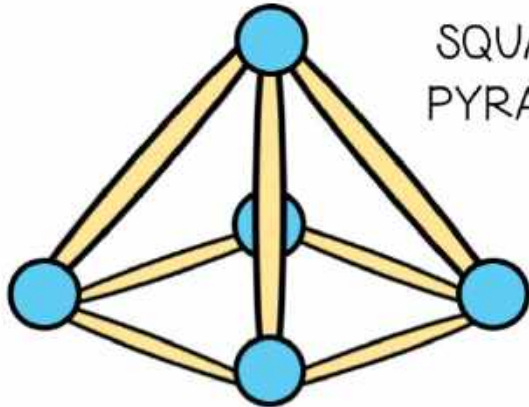
CUBE

EDGES

VERTICES

© Playdough to Plato

B

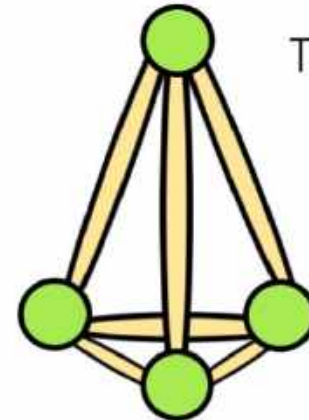


SQUARE  
PYRAMID

EDGES

VERTICES

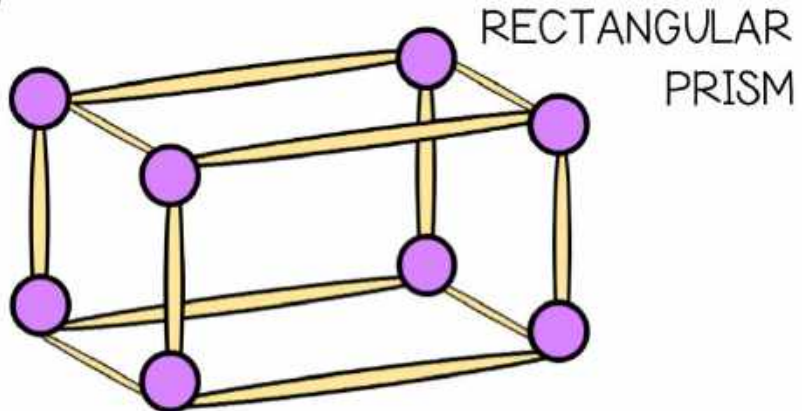
C



TRIANGULAR  
PYRAMID

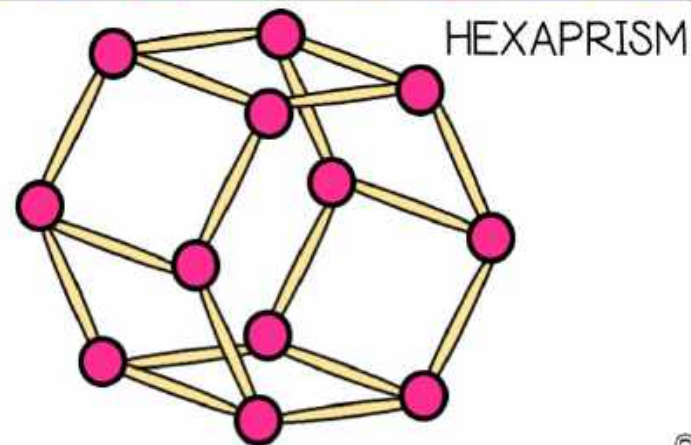
EDGES

VERTICES

**D**

EDGES

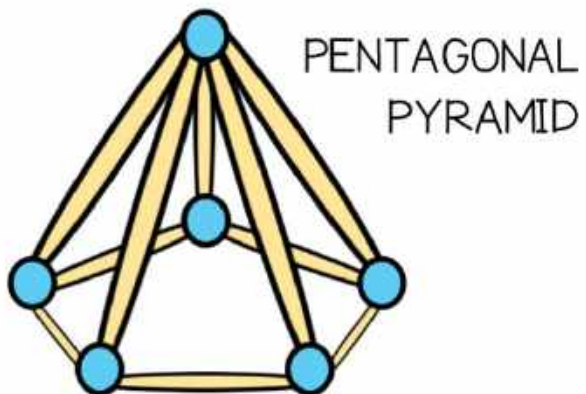
VERTICES

**E**

EDGES

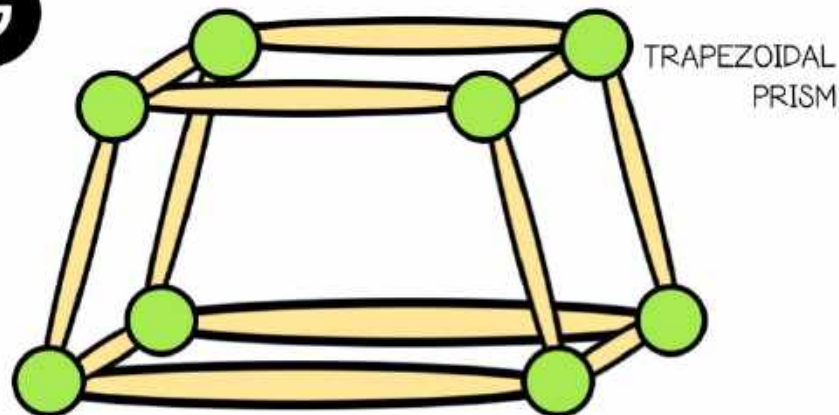
VERTICES

© Playdough to Plato

**F**

EDGES

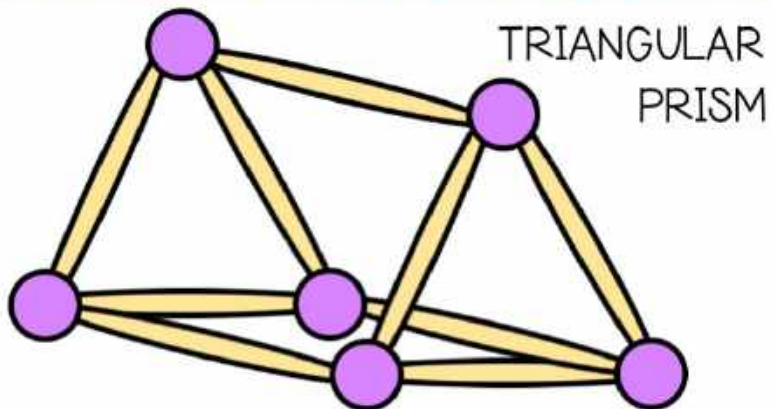
VERTICES

**G**

EDGES

VERTICES

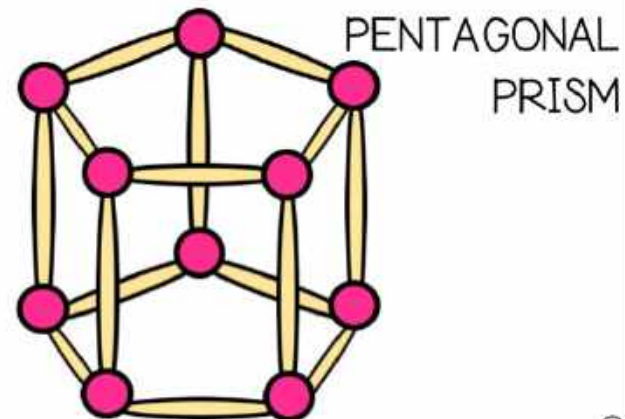
H



EDGES

VERTICES

I

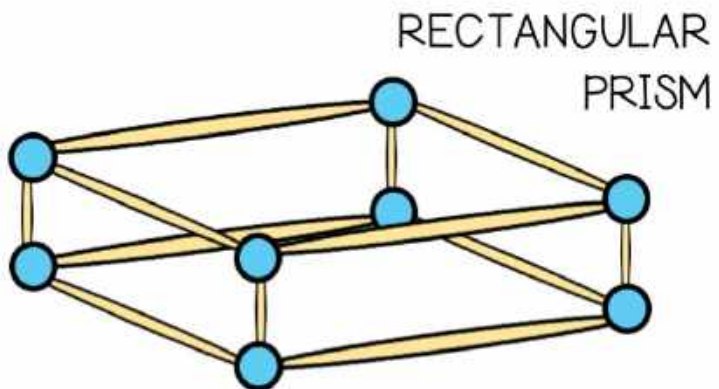


EDGES

VERTICES

© Playdough to Plato

J



EDGES

VERTICES

Name \_\_\_\_\_

# 3D toothpick SHAPES

Build each shape and then draw it below. Label the number of vertices and edges it has when you are finished.

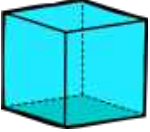


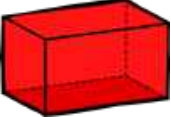
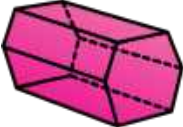
DRAW THE SHAPE	NUMBER OF EDGES	NUMBER OF VERTICES
A.		
B.		
C.		
D.		
E.		

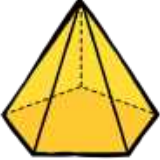
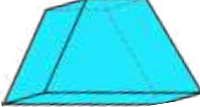
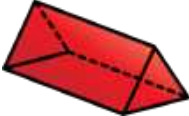
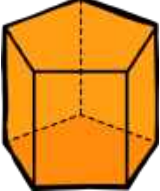

DRAW THE SHAPE	NUMBER OF EDGES	NUMBER OF VERTICES
F.		
G.		
H.		
I.		
J.		

Name \_\_\_\_\_ ANSWER KEY

# 3D toothpick SHAPES

Build each shape and then draw it below. Label the number of vertices and edges it has when you are finished.

DRAW THE SHAPE	NUMBER OF EDGES	NUMBER OF VERTICES
A. 	12	8
B. 	8	5
C. 	6	4
D. 	12	8
E. 	18	12

DRAW THE SHAPE	NUMBER OF EDGES	NUMBER OF VERTICES
F. 	10	6
G. 	12	8
H. 	9	6
I. 	15	10
J. 	12	8

Set 3

**DESIGN YOUR OWN**

Name \_\_\_\_\_

# TOOTHPICK DESIGN

Build a picture with your toothpicks and then draw it below. Write the total number of sides and vertices in the box when you're finished.

SIDES	VERTICES



# You Did It!

You made it through your first easy STEM challenge—how did it go? If your students were anything like mine, they were engaged, thinking critically, and having a blast.

(And if you had a moment of Wait, this was actually so simple—then yes, that’s the magic of STEM done right!)

Now imagine that same excitement happening all year long... without spending hours searching for activities or gathering weird supplies.

## That’s Where our Year of STEM Challenges Comes In!

Inside the bundle, you’ll get a full year of ready-to-go STEM activities—easy, hands-on challenges using simple materials you already have. Just print, grab supplies from your pantry or classroom, and let the learning begin!

For just \$97, you’ll have:

- ✓ 36 Done-for-You Challenges—One for every week of the school year!
- ✓ Simple Supplies—No expensive kits required!
- ✓ Engaging, Low-Prep Lessons—Set up in minutes, with huge impact!

# STEM can be easy, fun, and stress-free...

You’ve already taken the first step—now let’s make it a whole year of simple, powerful learning.

👉 **Grab the Year of STEM Challenges now for just \$97!**

I can’t wait to hear about all the STEM magic happening in your classroom.



# Real Teachers, Real Results.

“LOVE LOVE LOVE THIS! It saved me so much time and effort and are PERFECT for my children. Great resource for my young children and they loved engaging into their learning.” — Anushiya D.

My students love these activities during our centers. They always want to go to that center first. I love how simply they are to put together and set up. Thank you for this great resource. — Miranda H.

“This is BY FAR the most comprehensive, FUN low prep STEM bundle I’ve ever bought. Love it, and so do the kids!” – Nikki M.

Outstanding resources for independent work activities and group learning. Supports development of divergent thinking as well as fine motor control. So much benefit in these resources. – Amy D.

“I have used this in my tech/STEM lab with 3rd grade students. It was very well put together and the students definitely enjoyed the activities.” – Dawn Z.

“This is a great way to get started with STEM. Most of the resources you will need for the activities are inexpensive or your school may already have.” – Francine C.

