MATH HACKS 2
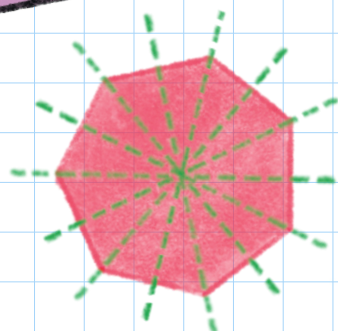
STRESS LESS + DO BETTER

Grades 3-6
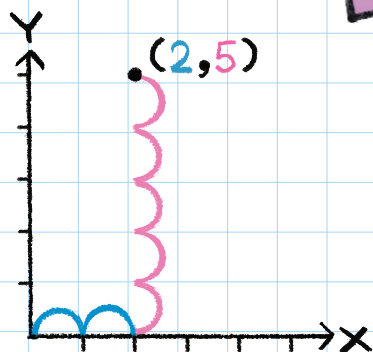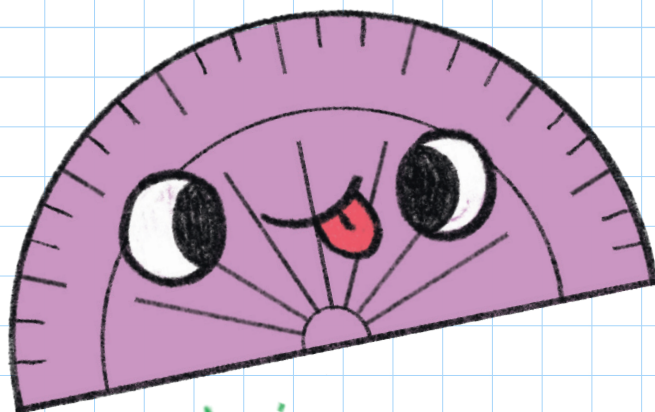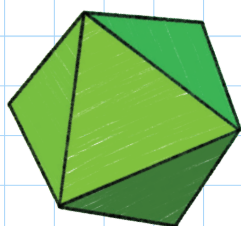
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PRODUCTIVITY HACKS

Some help for when you need to get stuff DONE!

"Productivity" is a big word that adults LOVE using — a lot. Basically, it means "getting stuff done"! The thing you need know is that being productive actually feels good. REALLY GOOD! It's a satisfied feeling that you can ONLY get by getting things done. Think about a time when you finished a big project, completed a game or (finally) cleaned your room. Those things probably seemed big and intimidating at first. But once you finished them . . . how good did you feel? Pretty great, right? Everyone struggles with this — even adults. But I'm about to teach YOU some great ways to get stuff DONE.

#1: You do you I'm a morning person. I LOVE getting up early! But if I don't go to bed early, I get so cranky that I have a name for it: the night sads! Nighttime is NOT a good time for me to do work. That means that I HAVE to finish it in the daytime so that at night I can relax, read a book, and go to bed early. What time of day are YOU most able to concentrate, focus and do work? It's probably when you're feeling alert and happy. Plan to do your school work then. Just like that, you've hacked your day and found the perfect time to get into your signature study zone!

STUDY ZONE
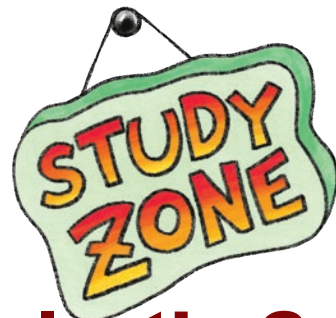
#2: Un-distract yourself! One of the biggest things that can get in the way of getting things done — especially homework — is getting distracted! There are a LOT of things that can distract us: phones, pets, siblings, sounds around the house and even the thoughts inside our heads! To stay focused, find a quiet place to work. Get rid of anything that might distract you. That means putting away books or toys, closing your computer, and DEFINITELY putting away your screens (tablet, phone, whatever) so that you can't even SEE them. Let people (siblings, parents, friends) know that you are about to get stuff done and ask them nicely to please not bug you unless it's SUPER important. Start getting stuff done!

#3: Break it down Sometimes a BIG project can seems so huge that it's impossible to even know where to start! So where's how to begin: just break it down. Take out a sheet of paper and break your BIG project into a list of mini-projects that don't seem so scary. Schedule time to complete each of the minis, and guess what? Once you're done all those little tiny projects, your big project will be totally DONE! I did that when I wrote this book! It seemed scary to write a whole big book, but thenI broke the book down into chapters (like the one you're reading right now!), and it seemed so much easier. One by one, I finished each chapter and, — voila! — I had a book. This book that you are actually holding in your hands right now!

PLOTTING A COORDINATE ON YOUR MAP

Okay, now what about when you have to plot your own coordinate on your math map? Well, it's SUPER easy now that you know how the coordinate grid works!

Q: **Plot the point whose coordinates are (5,2) on your grid.**
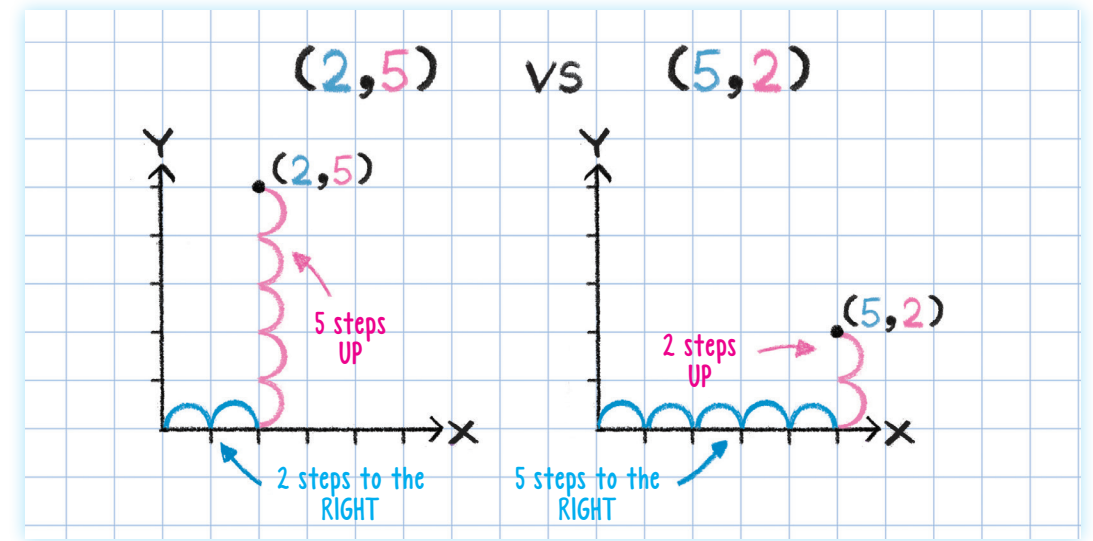
STEP ①

5 is our x-coordinate

We move to the right because x moves horizontally

STEP ②

Count up 2 squares from exactly where you left off in Step 1 and mark your point

STEP ③

Make sure you label your point properly — the x-coordinate comes first.

(5,2)

A: **Your point is ON your grid and labelled, so you're done!**
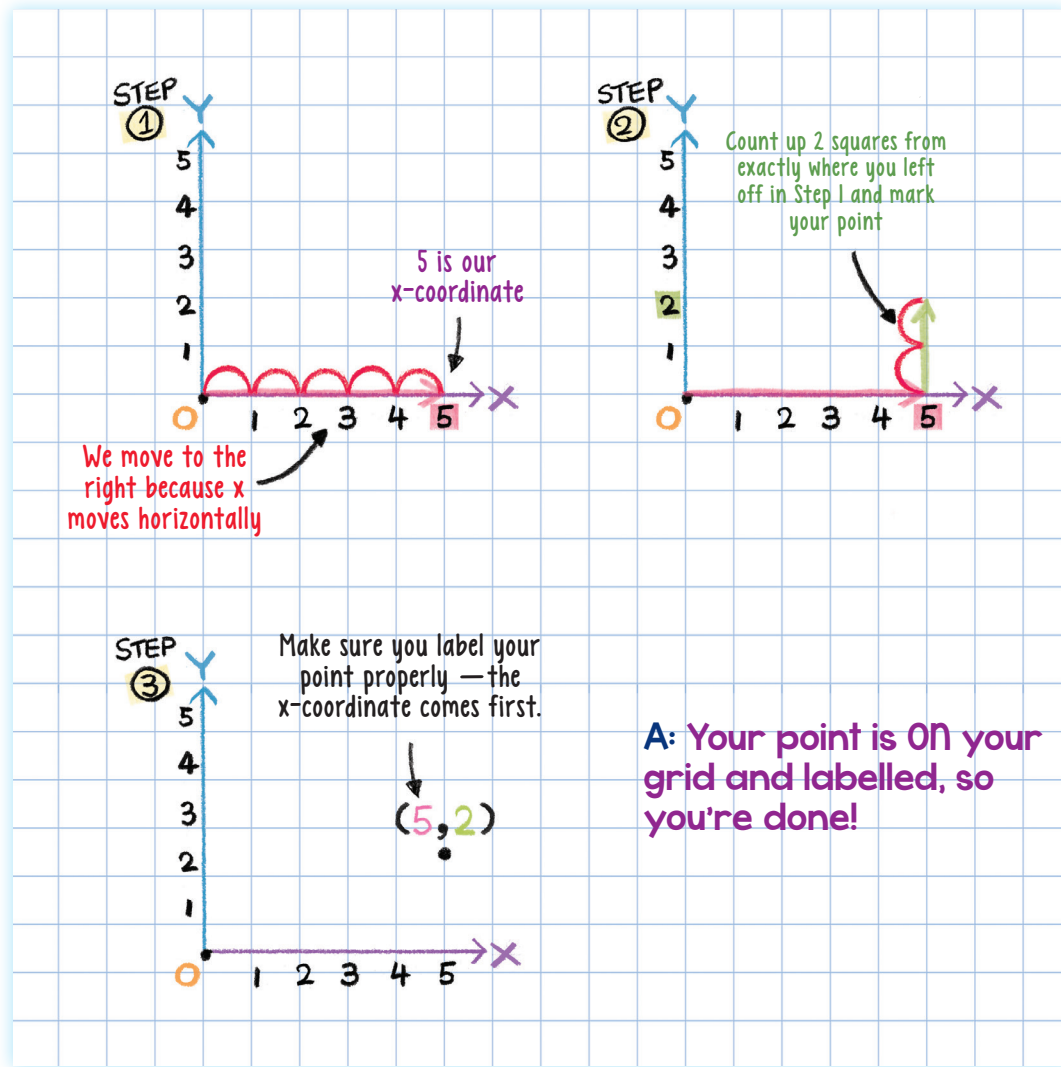
COORDINATE ABCs

When you're plotting points, make sure to pay special attention to the order of your coordinates. It matters! You can remember it with your ABC's. X comes before y in the alphabet, so it makes sense that we label our coordinates **(X, Y)** with the x before the y!

X comes first, and moves horizontally. Y comes second, and moves vertically. Got it?! Watch this!

Both points have both a 2 **and** a 5 in them, **but** pay close attention . . .

(2,5) vs (5,2)

(2,5)

5 steps UP

2 steps to the RIGHT

(5,2)

2 steps UP

5 steps to the RIGHT

In our first example, the 2 comes first, which means it's in the x spot. And the 5 comes second, which means it's in the y spot.

In our second example, the 5 comes first, which means it's in the x spot. And the 2 comes second, which means it's in the y spot.

Different Kinds of Lines

Lines can go in all kinds of every which way directions. But some lines are special, and you need to know them!

HORIZONTAL LINES

Horizontal lines are perfectly straight from left to right, AND they line up with the horizon — that's how I like to remember their name. Horizontal lines are 100% level. Think of a shelf for example — if it slanted, everything would slide off! If we drew a line across a shelf, it would be a horizontal line!

HORIZONTAL

A horizontal line is parallel with the horizon and is level from LEFT to RIGHT
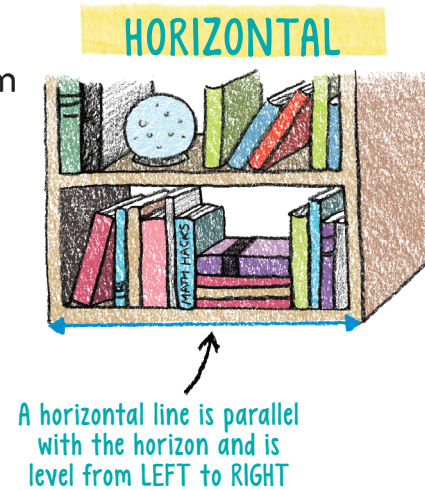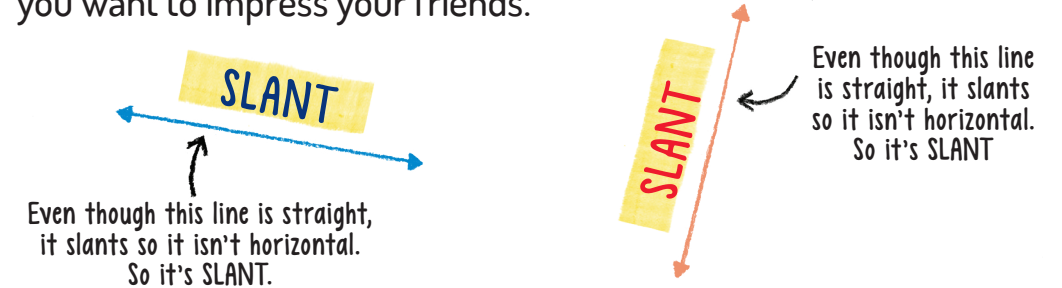
VERTICAL LINES

Vertical lines are perfectly straight up and down. Think of a skyscraper for example — if it didn't go straight up and down, it would fall over! If we drew a line up and down a building, it would be a vertical line. If your line is slanty at all, then it's not a vertical or horizontal line.

VERTICAL

A vertical line is perfectly straight UP and DOWN
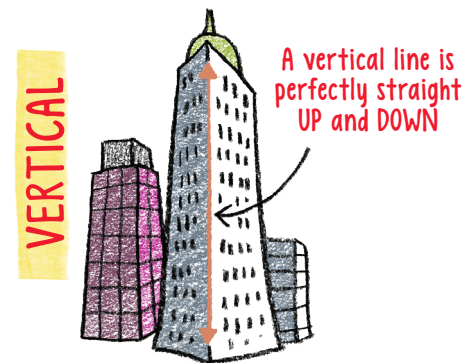
PRO TIP!
The most important thing about lines is that they are **PERFECTLY STRAIGHT**. Don't bother with shortcuts — use a ruler! They're literally *MADE* for drawing lines. Trust me, it makes a huge difference and will probably score you extra marks on your next test.

SLANT LINES

All of the rest of the lines in the world that aren't horizontal or vertical are slant lines. You can also call a slant line an oblique line if you want to impress your friends.
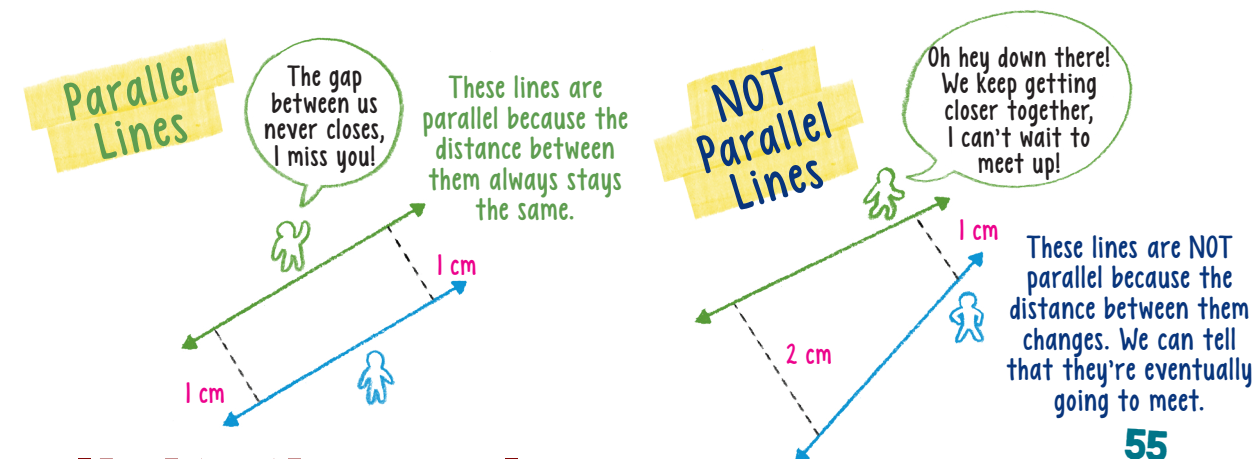
SLANT

Even though this line is straight, it slants so it isn't horizontal. So it's SLANT.

SLANT

Even though this line is straight, it slants so it isn't horizontal. So it's SLANT

WATCH OUT!
Sometimes people call slant lines diagonal lines. But they are not the same! In geometry, a diagonal is a line segment on the inside of a shape that joins two corners which aren't next to each other.

PARALLEL LINES

When two or more lines are exactly the same distance from one another, like the whole way along, we call them parallel lines! Parallel lines never meet, no matter how long they are. They're like long lost friends who live across the word from one another.

Parallel Lines

The gap between us never closes, I miss you!

These lines are parallel because the distance between them always stays the same.

1 cm

1 cm

NOT Parallel Lines

Oh hey down there! We keep getting closer together, I can't wait to meet up!

1 cm

2 cm

These lines are NOT parallel because the distance between them changes. We can tell that they're eventually going to meet.

WHAT ABOUT OTHER POLYGONS?!

There are SO many other polygons out there — but there's trick to knowing what they are called. For starters, a polygon always has the same number of sides as it has angles. For example, the "tri" in triangle means three and the "quad" in quadrilateral means four. The trick for the rest is the latin or greek word for the number of angles tacked on to the front of "gon." And what does "gon" mean? Basically a "shape with a number of angles." If you know the magic word for that number, you can name that polygon!

FEELING STUCK?

In a regular polygon, all angles are the same size and all sides are the same length. In an irregular polygon, that's not true.

Magic Word Hack	It means the number...	POLYGON NAME	Looks Kinda like...	
			REGULAR POLYGON	IRREGULAR POLYGON
TRI	3	Triangle		
QUAD	4	quadrilateral		
PENTA	5	Pentagon		
HEXA	6	Hexagon		

Magic Word Hack	It means the number...	POLYGON NAME	Looks Kinda like...	
			REGULAR POLYGON	IRREGULAR POLYGON
HEPTA	7	Heptagon		
OCTA	8	Octagon		
NONA	9	Nonagon		
DECA	10	Decagon		
HENDECA	11	Hendecagon		
DODECA	12	Dodecagon		

FUN Fact!

You'll probably NEVER see "hendeca" in your actual math class.

3-D SHAPES

Top Secrets Revealed!

What even are they?! A three dimensional shape is anything that has length, width and thickness. Shapes can be hollow or solid. For example, an empty shoebox is a 3-D shape, and so is a brick.

These are ALL 3-D shapes! Literally anything in the real world that's not drawn on a piece of paper or on a computer screen is a 3-D shape — anything at all!

Even a piece of paper is a 3-D shape. Even though it is super thin, it still has some thickness.

Thickness or Height

Length

Width

PRO TIP! When you see **3-D** written, it's just short for **THREE DIMENSIONAL**. Writing it as 3-D is cooler and quicker.

WHAT MAKES A 3-D SHAPE WHAT IT IS?

Many 3-D shapes have **faces**, **edges**, **vertices**

Faces

The surface of any 3-D shape is made up of 2-D shapes. Remember those? Any surface of a 3-D shape is called a face. You can think of faces as flat — both words start with an F! Spheres don't have ANY faces because remember: faces are flat and spheres are not. The face that your shape SITS on — like, the one at the bottom — has a special name. We call that face the base.

This is a cube's face — it's a square!

This is a cylinder's face — it's a circle!
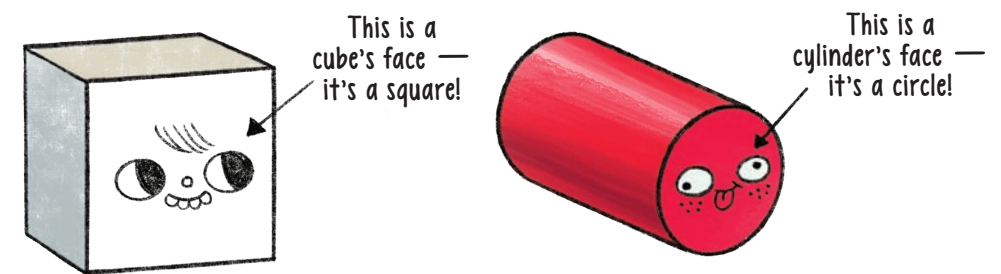
Edges

Picture tracing the face of ONE of your shape's faces. What you are tracing is the faces' edge. It's where two faces meet.

There are four edges on this cube's face!

There is one edge on this cylinder's face!