

How to Desmo-fy Your Math Lesson

NCTM

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<https://tinyurl.com/icmathnctm>

Explore math with Desmos.

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explore transformations, and much more – for
free!

[Start Graphing >](#)

**What do you wish
technology can
provide for you
in your teaching?**

Four Function and Scientific

Check out the newest additions to the
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Support for Math Educators

Linear Regression: Median SL...
by Luke Walsh

Fastest path to point
by Eric

Spirographer
by Evan Rudolph

Flotation
by Inesbuchi Takashi

What's Wrong With This Picture?

Explore math with Desmos.

Graph functions, plot data, evaluate equations,
and more. Transformations and much more – for
free.

Start Graphing >

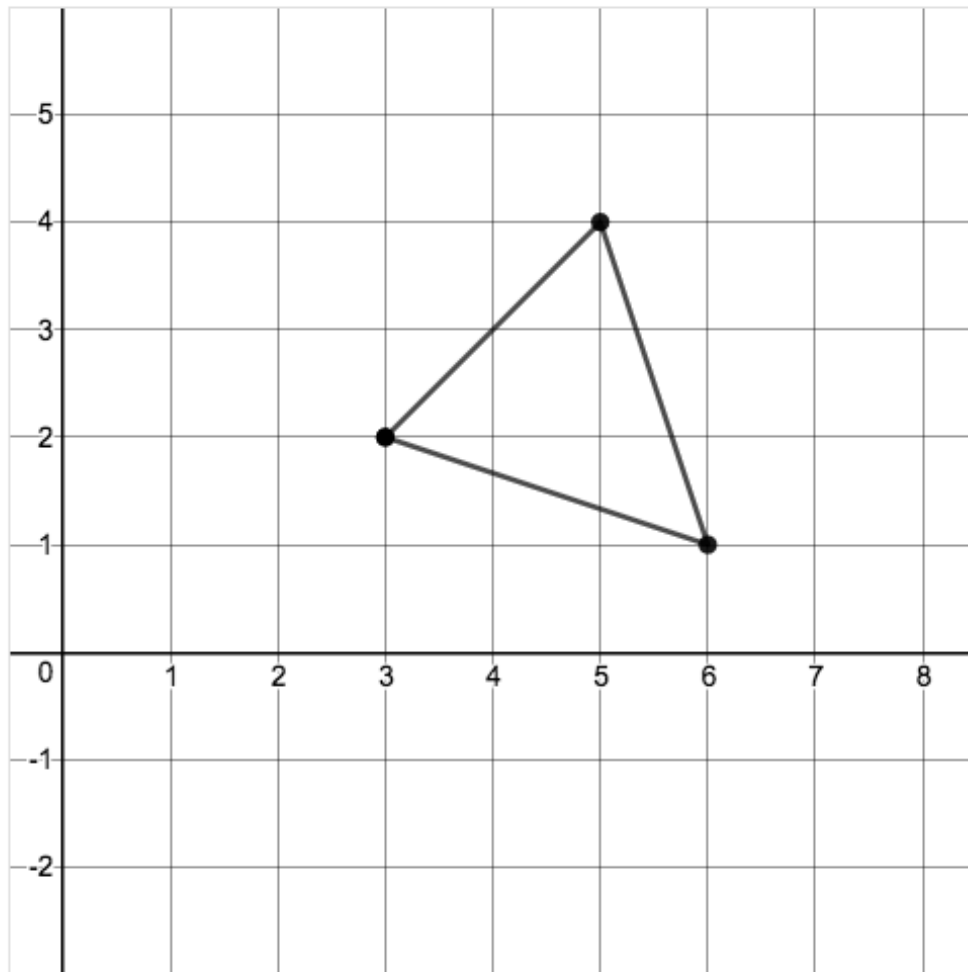


What's Wrong With This Picture?

Explore math with Desmos.

Graph functions, plot data, evaluate equations,
and more with Desmos' free online graphing calculator – for

[Start Graphing >](#)



Write the new coordinates of each vertex after the figure has been translated 3 units to the left and 2 units down.

[Submit to Class](#)

Please don't
do this

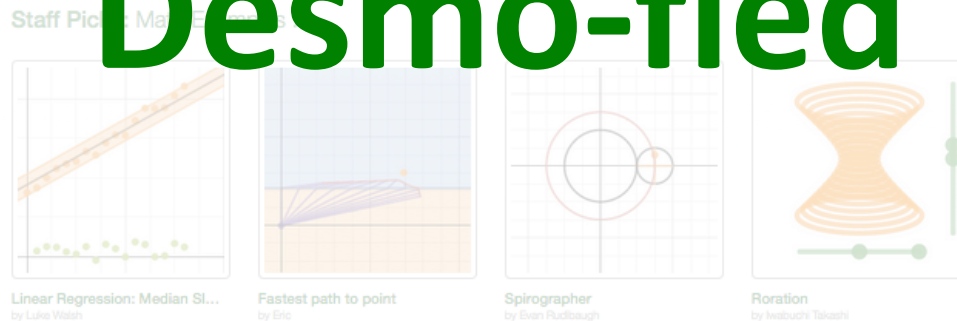
Just, no...

1. $7 - 0 =$
2. $9 - 2 =$
3. $11 - 4 =$
4. $2 - 1 =$
5. $5 - 0 =$
6. $10 - 6 =$
7. $12 - 3 =$
8. $8 - 5 =$
9. $11 - 7 =$
10. $12 - 9 =$

Submit to Class

Lesson #1

Not everything
should be
Desmo-fied

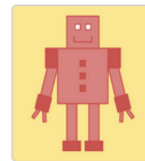


Lesson #2

“The goal is to
have students do
as much thinking
as possible”

Eli Luberoff

Desmos



Click Battle

by Desmos | 30-45 minutes | Development

Mobile Tablet Laptop

In this proportional reasoning activity, students will explore unit rate in the Click Battle

French translation courtesy of Jocelyn Dagenais:
<https://teacher.desmos.com/activitybuilder/custom/5a3b151507afa9169907b094>

Teacher Guide

Share activity

Copy and edit

This activity uses features that aren't publicly available.

Classes

Create Class Code

Sign in to see your classes and create new ones.

Screens

Student Preview

1 How many clicks?

On the next screen you'll see a blue button, similar to the "Submit to Class" button shown below.

$f(x)$

2 Gather some data.

Before we test your estimate, let's see how you perform in a practice round.

Click the button

3 Revise your estimate.

You clicked the button 41 times in 5 seconds.

Based on what you know now:

$f(x)$

4 Test your estimate.

Now it's time to test your estimate.

Original estimate:
70 clicks in 10 seconds

5 Click Battle #1

Here are two Desmos Click Bots™ along with some data:



6 Click Battle #2

Here are two Desmos Click Bots™ along with some data:



7 Click Battle #3

Here are two Desmos Click Bots™ along with some data:



8 Unit Rate

One way to determine who will win is to consider unit



9 Click Battle #4

Here are two Desmos Click Bots™ along with some data:



10 Click Battle #5

Here are two Desmos Click Bots™ along with some data:



11 Click Battle #6

Here are two Desmos Click Bots™ along with some data:



12 Settle a dispute.

During a 4-second practice round, one of the Click Bots made only 8 clicks.



13 These four bots are p...



14 Complete the table.

Here is some information from the practice round for several



<http://tinyurl.com/clickbattle>

Lesson #3

Use Desmos for growth mindset activities:

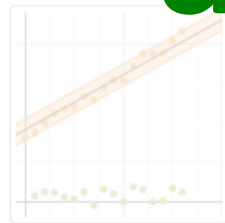
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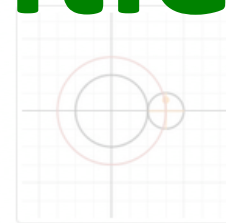
Staff Picks: Math



Linear Regression: Median Sl...
by Luke Walsh



Fastest path to point
by Eric



Spirograph
by Evan Rudolph



Roration
by Inatouchi Takashi

Lesson #3

“Safe” tasks

Multiple representations

Multiple solutions

Open-ended

Low floor, high ceiling

Desmos

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About Partnerships Classroom Activities We're Hiring!

math with desmos

Matthew Kim

Square Dance

BY ANDREW STADEL [view original](#) | [Duplicate This Activity](#)

Edited with love by Desmos Teaching Faculty
rational, irrational, number line, radical, square root

Start a New Session

Or [build your own activity!](#)

SHARE WITH OTHER TEACHERS <https://teacher.desmos.com/activitybuilder/custom/56fa95f6e9ce3e4406068c6f> [Tweet It](#)

ABOUT THIS ACTIVITY

In this activity, students will explore the relationship between the area and side length of squares as a segue to rational and irrational numbers.

During the activity, they will learn more about:

- Perfect squares and square roots
- Rational and irrational numbers
- Placing rational and irrational terms on a number line

Teacher note: View the "Teacher Tip" on Screen 5 for ideas on how to extend the conversation of rational numbers.

*Clothesline cards here: <http://bit.ly/squaredancecards>

SCREENS [preview](#)

1. Meet Blue. He's a perfect ...

2. [Untitled]

3. [Untitled]
What did you notice on the previous screen?

4. [Untitled]
Blue is a type of square that always has INTEGER side

5. [Untitled]
The side length of a square with area 100 is 10, and we call 10 the SQUARE ROOT of 100.
Similarly, the square root of 25 is 5 because Blue's side length is 5 when his area is 25.

6. [Untitled]
 $\sqrt{16} = 4$ This is the square root symbol: $\sqrt{\quad}$
 $\sqrt{100} = 10$ You may have noticed that the square root of

7. Drag the blue dots to sho...

8. Stop here.
Your teacher may want to discuss a few things with your class before moving on.

9. Meet Purple. She's a squ...
Imagine that Purple's area is 40 square units.

10. [Untitled]
Michael says Purple's side length is approximately 6.3, but not exactly. Luke says Purple's side length is exactly $\sqrt{40}$.
Who do you think is right? Explain.

11. [Untitled]

12. [Untitled]
1) Enter the side length when Purple had an area of 40.

13. [Untitled]
 $\sqrt{36} = 6$ $\sqrt{40}$ is between 6 and 7. How can we

14. Drag the dots to show th...

15. Use the slider in row 2 to...

16. [Untitled]
Enter the approximate values for:

<http://tinyurl.com/squaretango>

Lesson #4

- Think dynamically:
Explore connections
through movement
- What does the m do in $y = \underline{m}x$?
 - What does the a do in $y = \underline{a}x^2$?
 - How are different representations related?

Lesson #4

Think dynamically: Explore connections through movement

- What does 8.EE.6 ask students to do?
- What might be a goal for a lesson on this standard?



Lesson #4

- Think dynamically:
Explore connections
through movement**
- **8.EE.6 is about using similar triangles to show that points on the same line form triangles that have the same ratio of legs, i.e., constant rate of change**



Lesson #4

**Think dynamically:
Explore connections
through movement**

<https://tinyurl.com/slope-triangles>

- **What are students asked to do?**
- **What are the “ahas” that they might experience?**



4 Guidelines

Start with a clear goal

Focus on making connections

Keep it simple

“Copy and edit” from others

Field Trip Problem

Name _____

Graph the information from all four tables on the same grid and answer the questions.

Use the tables below to show how many total **people** are on the bus for each minute.

1. The Blue Bird bus is empty because the driver is talking to his friends from the other bus. Then 5 students get on the bus each minute.
2. The Gillig bus has 1 driver and 3 paraprofessional aides onboard before the students arrive. Then 5 students get on the bus each minute.
3. The Crown bus has 1 driver and 7 paraprofessional aides onboard before the students arrive. Then 5 students get on the bus each minute.
4. The Thomas Built bus has 1 driver and 9 parents onboard before the students arrive. Then 5 students get on the bus each minute.

1. What patterns do you notice in each table?

2. What do you notice about each line?
What is the same? What is different?

3. What is the equation for each line?
Blue Bird Bus
Gillig Bus
Crown Bus
Thomas Built Bus

Record how many people are on the bus for each minute.

Blue Bird Bus

Gillig Bus

Crown Bus

Thomas Built Bus

Let's Desmo-fy It

How can we teach the concept of y-intercept?

- What do the standards say?
- What are the key ideas and concepts?
- What is the mathematical goal of a lesson?

Go to **teacher.desmos.com**
(sign in or create account)

- Select **“Custom”** in the left menu bar
- Click on **“New Activity”** on the top
- **Name your activity**

Thank You

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For more information and handouts

<https://tinyurl.com/icmathnctm>