# **Math Tasks: Intermediate (Grades 7-8)**

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| **Monday, October 19th** |
| **Learning Goal: Add, subtract, multiply, and divide fractions, using appropriate strategies, in various contexts; Convert between fractions, decimal numbers, and percents, in various contexts.**  |
| **Task: Fractions Talk!*** Write a **mathematical statement** that, to you, **describes the whole** Fraction Talks image. Your statement can be an expression, an equation, a ratio, or anything else it makes sense to use.
* In the image, what **fraction** of the whole is **yellow**? How do you know?
* If you **subtract** **blue** from **yellow**, what fraction of the whole **remains**? **Verify** your answer using **operations** with fractions.
* What is the result of **dividing blue** by **green**? **Verify** your result.
* What **percent** of the whole is **not orange or green**? What process did you use to find your answer?
* **Create** your own **fraction** or **percent question** based on the image, and figure out what the answer should be. Either use the image shown, *or* create and colour your own fraction talk!

**Share** your question with someone in your home, and discuss the answer. |   Source: [Fraction Talks](http://fractiontalks.com/) |

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| **Tuesday, October 20th** |
| **Learning Goal: I apply proportional reasoning to solve problems; I identify various societal and personal factors that may influence financial decision making.**  |
| **Task: Would you Rather?*** Which box of foil would you rather buy? Explain any calculations you did, as well as any other factors you considered.
* Do you think everyone would give the same answer to this question? Explain one other choice a person might make, and why.
* **Create** your own **“Would You Rather”** from information about a different grocery item**.**

If it is not possible to visit a grocery store, you can look for prices and sizes of items online. Here are two examples: <https://freshco.com/>, <https://www.nofrills.ca/>* Share your activity with another person in your home. **Do you both agree** on which choice is the best?
 |   A larger image is here: [1 thought on “Would You Rather…”](https://www.wouldyourathermath.com/aluminum_foil/) |

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| **Wednesday, October 21st** |
| **Learning Goal: Describe the Pythagorean relationship using various geometric models**  |
| **Task: Right on, Triangles!*** Try the **Proof Without Words** for Right Triangles. Drag each region to its matching dot. What do you notice? What do you wonder?

Write a sentence to **summarize** **what you think** the Proof is showing.* Explore the **Right Triangle Review**. Drag the red dots to adjust the size and shape of the right triangle.
* Click the “Area” button and observe the measurements.
* **Reflect** on your **previous summary** from the Proof. Were the area measurements what you expected? Adjust your summary if needed.
* Draw, cut out, or find in your home **examples of right triangles**. **Measure** their **side lengths**. Use side lengths to **calculate the areas** of the squares on each side, and share the relationship between the areas with someone in your home.

 *hint:* $Area of a square = (side length ×side length) =(side length)^{2}^{}$ |   [Proof Without Words – GeoGebra](https://www.geogebra.org/m/ZFTGX57r)  [Right Triangle Review](https://www.nctm.org/Classroom-Resources/Illuminations/Interactives/WSP-Pythagorean-Review/) |

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| **Thursday, October 22nd** |
| **Learning Goal:** Create and translate repeating, growing, and shrinking patterns involving whole numbers, decimal numbers, and rational numbers using various representations; I will create computational representations of mathematical situations  |
| **Task: A Trick of the Eye*** Optical art contains geometric shapes and patterns. Sometimes these patterns trick the eye with an “optical illusion”.
* Look at the three examples. Do you see anything in the patterns that **creates an optical illusion**?
* Using a 100-square area on grid paper (10x10), **create your own interesting pattern**. Can you create an optical illusion within your artwork?
* Can you see any **patterns, fractions or decimal**s in your artwork? Where are they?
* Think of a **mathematical question** you could ask about your artwork.
* If someone wanted to **recreate** your artwork, what **directions** would you give them? **Share** your directions with someone at home, and see if they can draw your pattern.

 Task adapted from [*youcubed*](https://www.youcubed.org/tasks/optical-art-task/) | <https://bhi61nm2cr3mkdgk1dtaov18-wpengine.netdna-ssl.com/wp-content/uploads/2017/03/Optiacal-Art-image-1.jpg> A larger image of the illusions is [here](https://bhi61nm2cr3mkdgk1dtaov18-wpengine.netdna-ssl.com/wp-content/uploads/2017/03/Optiacal-Art-image-1.jpg)  If printing, a grid clipart is [here](https://clipartart.com/images/20x20-grid-clipart-1.gif) |

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| **Friday, October 23rd** |
| **Learning Goal:** I will solve counting problems and create computational representations of mathematical situations  |
| **Task: Cone Combinations*** Imagine a shop that sells **10 flavours** of ice cream.
* How many **different 2-flavour cones** could they sell, if the order of flavours doesn’t matter? Show how you came up with your result.
* Write **instructions** for someone to determine the total number of **different 3-flavour cones,** if the order of flavours doesn’t matter.

What **advice** would you give for making this process as **efficient** as possible?* Share your instructions with someone in your home, and complete the calculations together. Would you **adjust** your strategy? Explain.

 Task adapted from [*youcubed*](https://www.youcubed.org/tasks/ice-cream-scoop/) |  https://bhi61nm2cr3mkdgk1dtaov18-wpengine.netdna-ssl.com/wp-content/uploads/2017/03/ice-cream-snoop-thm1.jpg Image source: [Ice Cream Scoop](https://www.youcubed.org/tasks/ice-cream-scoop/) |