MATH TREK Integrals:

Time-Lapse Vision and Shapes of Revolution

Math Trek is a scavenger hunt game.

Grow your math eyes.

Make connections.

Notice new math ideas in your familiar places.

Seek a favorite math idea everywhere you go: parks, neighborhoods, around the town...

Time-lapse photo of the sun by Pekka Parviainen

Samoan Fire Dance time-lapse by HeivaSanDiego.com

Try: Search for Trek Prompts by yourself. Ask friends and family what they see. Browse online Image Search results. Take photos, vids, or tell a story about your finds!

Interesting choices: Look for physical objects around you OR use your imagination. Discover math out there OR invent and make your own.

Terms for Integrals: Time-Lapse

Actions	rotate, revolve, smooth out, fill in, approximate
Things	point, line, surface, solid, circle, disk, stop-motion, time-lapse
Concepts	dimensions, 0D-1D-2D-3D, integral, shapes of revolution, discrete, continuous

Find examples, **Pose** problems,
Design puzzles, **Ask** questions,
Construct proofs, **Write** stories,
Build models, **Create** art

Make mathematics

From International Mathematics Subject Classification (MSC2020): #28 Measure and Integration

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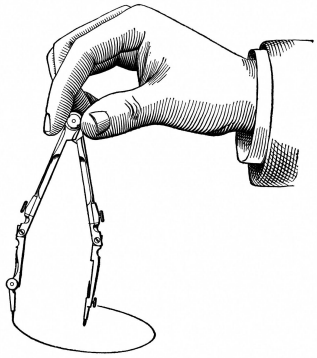
MATH TREK Integrals: Time-Lapse - Prompts

1 Feel it: Inverse blinking and your time-lapse power

Have you ever been to a party or seen a video with a strobe light? Everything appears in stop-motion! Here's how to experience that with "inverse blinking." Ask a math friend to dance, or look at something moving. Keep your eyes closed most of the time. Every second or two, open your eyes for a brief moment, then close them right away. How does the world feel in the time-lapse mode?

2 Feel it: Going around

Find something that can go around and around. Or someone! What parts of your body can you rotate?



Images: Daxiao Productions, Pilar Newton

3 Line of revolution

Find something that goes around and around and leaves a trace. What shape is that trace? Try to use your body to make lines of revolution.

4 A point and a stick

What shapes can you make if you rotate a stick (an interval) around a point? Use your time-lapse power to imagine, or your pencils and math friends to model. Think 2D & 3D!

Image: Lovepik

5 Around a line

Rotate a string or a pipe cleaner holding the ends still. What shapes do you see with your time-lapse vision? Find these surfaces of revolution around you; make some out of paper.

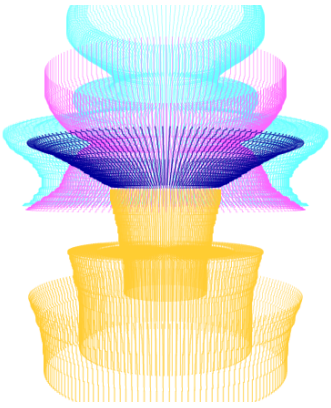


Image credits: Claire Winlow, Karyn Tripp, Lia Griffith

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