

STEM from Home

Animated Word Problems

Introduction

Watch and solve the problem in the video given below.

Video Link: <https://youtu.be/SyvXML-Dcio>

Now read the text given below.

“Ben went to a grocery shop with his mom. He bought bananas, 2 apple juice box and 2 cartons of milk. Cost of bananas is \$ 10.00, apple juice is \$ 7.00 per box and milk is \$ 15.00 per carton. What is the total amount to be paid at the counter?”

Which of the two representations – Video or the text was more interesting? Was the text more easy to understand or the video?

Most of the times Word Problems are difficult to understand. It gets easier to solve once the problem is understood. Animation makes it easier for us to communicate our ideas in an easy-to-perceive manner. At times it also enables designers visualize to practical problems which cannot be understood using the text description.

Also, many complicated problems of physics, economics and mathematics are solved using animated models. Many times, coding/programming and excel simulations are also added to the animation.



Main Activity: **Bring it to Life**

Introduction

Animation makes it easier to understand the word problems. In this activity we will animate a word problem.

“Rahul is buying vegetables and fruits. Vendor is selling tomatoes in dozens. Rahul does not need a dozen tomatoes he only needs 8 tomatoes. He asks the vendor to give him apples in place of remaining tomatoes. How many apples will he get?”

What You Will Need

1. Desktop / Laptop,
2. Pencil 2D (<https://www.pencil2d.org>)

What you will learn

1. You will be able to visualize a word problem.
2. You will be able to apply your creative skills in designing a 2D animation.
3. You will learn the software Pencil 2D.

[Access the activity from here](#)

Bonus Activities

Activity 1: Lights, Camera, and Animation

Introduction

Story telling is the most impactful way to present an idea and imprint it in our subconscious mind. In this activity, you need to choose 3 -4 mathematics chapters that you have done recently. You need to create a story to showcase at least one concept from each chapter. You can choose a real-world scenario like a girl/boy going on a school trip or a fictional setup like Harry Potter shopping for wizardry tools in the Diagon Alley.

What Will You Need

1. A computer /laptop
2. Pencil 2D (<https://www.pencil2d.org>)

What Will You Learn

1. You will be able to interconnect different mathematical concepts
2. You will be able to demonstrate your ideas in an attractive and fun manner.
3. You will be able to create 2D animation using Pencil 2D.

[Let's Get Started](#)

Challenge Activity : Dynamic Animation

Animation can be static (based on fixed input) and dynamic (taking user input and then responding accordingly).

Now your challenge is to design and create an animation that takes user input and presents you solution to a problem based on the user input.

Sample Problem: "A monkey jumps 5 feet forward in 5 seconds and after every two forward jump it jumps 3 feet backward in 6 seconds. In how much time can it cross a 45 feet bridge?" You need to take the bridge length as user input and animate the problem.

What you will need:

1. A desktop /laptop
2. Programmable animation software such as Scratch (<https://scratch.mit.edu/download>) or GeoGebra (<https://www.geogebra.org/download>)

Once you complete the challenge, upload a video showing the demo of your animation on the FlipGrid (FlipGrid link to be provided by the instructor)