

Lab Framework

Text:CORD Classic

Unit number and title:Unit 9: Using Ratios and Proportions

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Lab Title Animate This!

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Short Description: Using averages and ratios, students will calculate how long it will take them to animate a 5 minute cartoon.

LAB PLAN

TEACHER: Teacher Prep/ Lesson Plan

- **Lab Objective**

Students will complete 5 simple drawings to find the average length of time it takes to complete one drawing and then calculate how long it will take them to animate a 5 minute cartoon.

- **Statement of pre-requisite skills needed** (i.e., vocabulary, measurement techniques, formulas, etc.)

Students must be able to calculate averages

Students must be able to add time values

Students must be able to convert seconds to minutes and hours

Students must be able to utilize ratios to find the missing value

- **New Vocabulary**

Frame

Frame rate

- **Materials List**

Scratch paper

Example drawing

Lab worksheets

- **GLEs addressed**

Math: 1.1.4 Apply the concepts of ratio, percent, and direct proportion.

4.1 Gather information.

4.2 Organize, represent and share information.

5.3.1 Understand that mathematics is used extensively in daily life outside the classroom.

Reading: 3.2 Read to perform a task.

Writing: 3.3 Knows and applies writing conventions appropriate for the grade level.

- **Leadership Skills**

- **Group Skills**

2.1 The student will communicate, participate, and advocate effectively in pairs, small groups, teams, and large groups in order to reach common goals.

- **SCAN Skills**
 - Arithmetic
 - A. Performs basic computations
 - B. Uses basic numerical concepts such as whole numbers and percentages in practical situations
 - D. And uses tables, graphs, diagrams, and charts to obtain or convey quantities information

- **Set-up information**
 - Create a simple drawing the students will use to begin with.
 - It should have some sort of background they have to redraw.
 - It should contain some character or object that will be animated.
 - Pair students at random.
 - Have students complete the estimation section prior to starting.
 - Give students the ratio of 24 frames to second of film after they are done calculating their average time to draw one frame.

- **Lab organization**(-Grouping/leadership opportunities/cooperative learning expectations; -**Timeline required**)
 - The entire lab should take between 15-20 minutes.
 - Each pair of students will have an animator and a recorder.

- **Teacher Assessment of student learning** (scoring guide, rubric)
 - Students will turn in completed worksheets and drawings.
 - Teacher will observe to see if both students are participating.

- **Summary of learning** (to be finished after student completes lab)
 - discuss real world application of learning from lab
 - opportunity for students to share/present learning
 - Each pair of students will present their drawings and outcomes to the

class.

Students should see that the more involved the drawing is the longer it will take to animate the 5 minute cartoon.

- **Optional activities**
 - Discuss ways to cut down the time it takes to draw. For example, if the background stays the same only draw it once and draw the objects or characters that move on a transparency.
- **Career Applications**
 - Animators must budget their time wisely to fit all of their work into strict deadlines.
 - Producers must find ways to cut down the animation time in order to save money and complete the project on time.

LAB TITLE: Animate This!
STUDENT INSTRUCTIONS:

- **Statement of problem addressed by lab**

Students will complete 5 simple drawings to find the average length of time it takes to complete one drawing and calculate out how long it will take them to animate a 5 minute cartoon.
- **Grouping instructions and roles**

Students will be divided into pairs.
One student will be the recorder and the other student will be the animator.
- **Procedures – steps to follow/instructions**

Estimate how many still frames there are in a 5 minute cartoon.
Record your estimate on your lab worksheet.
Estimate how long you think it will take to draw all of the still frames for a 5 minute cartoon.
Record your estimate on your lab worksheet.
Copy the drawing provided by the teacher.
The record keeper should time how long it takes the animator to draw the first picture.
Record the time in a chart you create.
Decide on an object you want to see move around the screen.
Draw a second picture including everything in the first picture and move the object slightly.
Record the time it took to draw the second picture.
Continue until you have drawn 5 pictures or frames.
Find the average amount of seconds it took the animator to draw one frame.
Use the information provided on the lab worksheet and the animator's average time per frame to calculate how long it will take to animate a 5 minute cartoon.
Your final answer should be in terms of hours.
- **Outcome instructions**

Once all groups are finished we will share our findings with the class to see if there are any variations in outcomes.
Explain in written form why some groups might take longer to animate a 5 minute cartoon than others
Discuss ways to cut down the overall time to animate the cartoon.
Turn in drawings and lab worksheets
- **Assessment instructions (peer-teacher)**

Teacher observation-all students should be either drawing or recording information.
Completed lab worksheet and classroom discussion participation.

Lab Data Collection

Student: _____ **Date:** _____

Unit: _____

Lab Title:

Criteria: Write the problem/objective in statement form

Data Collection: Record the collected/given data

Calculations: Complete the given calculations to solve for an answer(s)

Summary Statement:

Other Assessment(s)