

Design a Theater

4th Grade Math Project · Arts & Design

Grade 4 · Advanced

Name: _____ Date: _____ Class: _____

The Challenge

The town is building a new community theater, and you are the designer. You will plan the seats, count them with multiplication, and find out how much a sold-out show earns.

You will make: Theater Seating Plan

What you will learn

- Multiply a multi-digit number by a one-digit number, and two two-digit numbers.
- Use arrays, area models and partial products.
- Solve multiplicative comparison problems (times as many).
- Estimate products to check answers.

Materials

- Grid paper
- Ruler
- Colored pencils

How to do it

1. Part 1: The Main Floor
2. Part 2: The Side Sections
3. Part 3: Compare the Crowds
4. Part 4: Sold Out!
5. Check your work and share your theater seating plan.

Part 1: The Main Floor

The main floor has 9 rows with 38 seats in each row.

1. Sketch an area model. Break the number of seats in a row into tens and ones.

2. Find the partial products and add them.

3. How many seats are on the main floor?

Part 2: The Side Sections

The side sections have 24 rows with 18 seats in each row.

4. Find the partial products and add them.

5. How many seats are in the side sections?

6. How many seats does the theater have in all?

Part 3: Compare the Crowds

On Friday, 57 children came to the show. 6 times as many adults came.

7. Write a multiplication equation for the number of adults.

8. How many people came in all?

9. Were there enough seats for everyone? Explain.

Part 4: Sold Out!

Every seat is sold for $9.

10. How much money do ticket sales bring in for one sold-out show?

11. Estimate to check. Show your rounding.

12. Draw your seating plan. Label the rows and seats in each section.

⭐ Extension Challenge

A student says 24 × 18 is the same as 48 × 9. Is the student correct? Explain with an area model, without multiplying it all out.

How your project will be scored

Category	4 Excellent	3 Good	2 Developing	1 Beginning
Math accuracy	All answers correct	Most answers correct	Some answers correct	Few answers correct
Shows work	Clear work for every step	Work for most steps	Some work shown	Little work shown
Explains thinking	Clear, complete explanations	Mostly clear explanations	Some explanation	Little explanation
Final product	Complete, neat and creative	Complete and neat	Partly complete	Not complete