Trees and Me

Summary

In this task, students will apply their knowledge of the exponents and exponential notation to a real-world problem.

Main Core Tie

Mathematics Grade 6

Strand: EXPRESSIONS AND EQUATIONS (6.EE) Standard 6.EE.1

Time Frame

1 class periods of 45 minutes each

Group Size

Small Groups

Materials

- Task sheet
- Math journals
- Chart paper
- Pictures of trees
- One Grain of Rice by Demi

Background for Teachers

Curriculum Guide for Grade 6 Expressions and Equations

Student Prior Knowledge

Students need a working understanding of the meaning of exponents and how to correctly represent data using exponential notation.

Intended Learning Outcomes

Understand that exponential notation represents multiplication where the base always remains the same for a given entity.

Strategies for Diverse Learners

For Fast Finishers: Students should be asked questions to promote higher learning if they finish early.
Example:

- How would your pattern change if the trees quadrupled?
- How about tripled?
- Or if they doubled but it took 3 years or 10 years?
- Could you easily find the amount of trees there would be if you were 100?
- Could you find a formula that would work every time?

Help for Struggling Students:

- If students write down the numbers doubling every year but can't get to the base… ask, "Do you see any patterns with the number of trees?"
- How many times did you double the trees? (helping to find exponent)
- Students may say, "If it doubles every two years then that means it adds 1 every year." To this

the teacher may respond, "Write that out." "Show me how that doubles."

Extensions

Have students read One Grain of Rice by Demi and refer their knowledge of the tree task to the story and have them predict and figure out some of the future numbers of rice in the book before actually finishing the entire story.

"Certain biological cells quadruple each hour. Start with one cell at 2:00 and find out how many cells there will be by 5:00. Create a diagram to represent the cell growth. Include an equation using exponential notation.

Bibliography

Adapted from: Smith, Margaret Schwan, Victoria Bill, and Elizabeth K. Hughes. "Thinking Through a Lesson Protocol: Successfully Implementi ng High-Level Tasks." Mathematics Teaching in the Middle School 14 (October 2008): 132-138.

Authors

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