LEARN NC

Fire in Pythagorville: Problem-centered lessons

Students will work on problem-centered lessons which use the application of the Pythagorean theorem to put out a fire in the fictional town of Pythagorville.

A lesson plan for grade 8 Mathematics

BY **KELLY CRISP**

Learning outcomes

Students will apply the Pythagorean theorem using problem-centered tasks.

Teacher planning

TIME REQUIRED FOR LESSON

180 Minutes

MATERIALS/RESOURCES

- student task sheet Fire in Pythagorville, (attached)
- town of Pythagorville coordinate map, (attached)
- overhead transparencies/marker (optional),
- calculator (optional).

Pre-activities

Students will need a conceptual understanding of the Pythagorean theorem. Students need an understanding of the coordinate plane.

Activities

1. Teacher will introduce the fictional town of Pythagorville and the problem-centered tasks associated with the fire scenario.
2. Students will work in homogeneous pairs to complete the tasks. They will write answers to each question on an overhead in preparation for the class discussion.
3. While students are solving the problems, the teacher will move around the room

Learn more

- Pythagorean Theorem Proof This site has an animated proof of the Pythagorean Theorem to visually show students its purpose.

RELATED PAGES

- Problem-centered lesson on the Pythagorean Theorem: This lesson is designed to help students give meaning to solving problems using the Pythagorean Theorem in a useful and meaningful situation.
- Utility workers: Working with the Pythagorean theorem: In this lesson plan, students use the Pythagorean theorem to solve a problem relevant to the careers of utility

listening to the discussion but avoiding answering questions directly. Do not tell students whether they are right or wrong and don't give hints. This is an important learning time for both the teacher and students.

4. When student pairs have completed the tasks, have the class come together for whole group discussion. Call on pairs to come up to the overhead to explain how they solved the tasks. Teacher is to feel free to ask clarifying questions but do not judge or tell students they are right and wrong.

Assessment

See attachment for further discussion on rubric assessment.

Supplemental information

The computer simulation Prime Time Math, Fire, by Tom Snyder Productions makes a great supplemental resource for this lesson.

See attachment for discussion of problem-centered learning by Grayson Wheatley. Attachments:

- Discussion
- Thoughts about rubrics
- Fire doc | rtf
- Town map

North Carolina Curriculum Alignment

MATHEMATICS (2004)

Grade 8

- **Goal 2**: Measurement - The learner will understand and use measurement concepts.
    - **Objective 2.02**: Apply and use concepts of indirect measurement.
- **Goal 3**: Geometry - The learner will understand and use properties and relationships in geometry.
    - **Objective 3.01**: Represent problem situations with geometric models.
    - **Objective 3.02**: Apply geometric properties and relationships, including the Pythagorean theorem, to solve problems.

workers.

- Quick Draw: An engaging math activity that helps students develop and talk about spatial reasoning.

RELATED TOPICS

- Learn more about Pythagorean theorem, discovery learning, geometry, and mathematics.

Help

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