

Questions

Is there a disadvantage to working alone? Is there an advantage to working in groups?

Materials Needed

For this activity, you will need the following materials:

- a pencil (do not use ink)
- the ability to read and follow directions

Points To Remember

Unless otherwise explicitly instructed, your responses must not contain personal opinions. All of your responses must be in the form of complete sentences; the fewer sentences the better. Spelling and grammar must be correct. Effective communication is essential for both learning and doing science.

Don't ask instructors for answers to questions posed in activities; you won't get them. You may ask questions regarding the clarity of the instructions or the soundness of your reasoning. If you encounter a word you are not familiar with, don't ask the instructor about it. Look it up first in your glossary and then a dictionary or some other source if necessary. Ensure that all definitions are unanimously agreed upon before proceeding. There are, of course, sound reasons for these policies. See the instructor if you have questions, but do not complain about these policies. They are not negotiable.

1 Hip To Be Square

1.1 Background Information

Karen has a son, Mike, in high school who is a very bright student and very good in mathematics and computer programming. He stopped by her office one day after school and Karen asked what he was doing in school. Mike told her about his latest assignment. He is supposed to write a computer program to handle very large numbers that could not be handled on a typical hand-held calculator. The teacher told the students to use that program to determine if a certain very large number is a perfect square. (What is a perfect square? A perfect square is a whole number or an integer that is arrived at by squaring another whole number. For example, 900 is a perfect square of 30; 196 is a perfect square of 14. 625 is the perfect square of 25. So there are no fractions, no decimals, no nothing. Just whole numbers allowed.) Each student is assigned a particular number. Mike's number is 2885327758242832, and the teacher wants to know whether it is a perfect square.

Karen says, "Oh, your teacher gave you an easy number."

"She did?" said Mike.

"Yep. I can check your answer **after** you figure it out for your self."

1.2 The Puzzle Worked Individually

What does Karen know that Mike doesn't know?



1.3 The Same Puzzle Worked Cooperatively

Team up with one, two, or three (your instructor will specify which) and work through this puzzle again as a group. Use the space provided to work or write out anything you think might help you.



2 Inquiry

Did you find this puzzle easier when working individually or when working cooperatively? Defend your choice.

Would you trust an individual's answer more than you would trust a group's answer? Defend your choice.

Do you think scientists work better as individuals or in groups? Defend your response.

—— CHECKPOINT ——

What could be done to make this activity more interesting? Please be honest.

LCITTA Activity
Student Version