

Scientific Inquiry Using Chess

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A major component of science is to be able to ask good questions. Properly formulating a question is the first step of the scientific method. As a science teacher, I wanted to be able to address the importance of good questions in a fun and interesting way- something that would stick with students.

I came up with an exercise where students collaborated in teams of three to formulate good questions to identify an unknown object. I tried this collaborative-questioning exercise with my sixth grade class, a group of six eleven-year-old girls who only knew the names of the chessmen.

Materials:

1. White and black chessmen (one of each, for a total of 12)
2. Other white and black items (to make the game more challenging, such as a black eraser and a white piece of chalk)
3. Dry-erase or chalk board (to record how many questions were asked per round)

Procedure:

1. Divide the class into two groups, three people per group.
2. Explain the rules:
 - a. Have one of the teams write down the name and color of a chessman or other game items on a piece of paper, and have the other team guess what the item is by only asking yes or no questions.
 - i. Example of question: Is this item white?
 - b. Each team has a maximum of 20 questions, if the team finishes the first round after asking five questions, for the next round that team will have a maximum of 15 questions.
 - c. Alternate teams, after the first team figures out the item, it is the next team's turn.
 - d. Keep playing until both teams use up their 20 questions.
3. Determine the winner:
 - a. Whichever team was able to guess more items wins! Ties are possible.

Outcome:

This was such a fun game for the students! I complimented all the girls for their teamwork and coming up with great questions. I asked the students what they

think the best first question was. They all agreed that it was either “is it white” or “is it black.” I then asked them what a very bad second question would be. And they answered “asking if it was the other color.” Then, together we made a list of what the best first three questions were and this is what they came up with:

1. Is it black?
2. Is it a chess piece?
3. (If yes): is it one of the above: a king, queen, or rook? (If no): just ask each item individually.

Overall, this was a great activity for the students and they had a great time collaborating to come up with good questions. The best part about this game is it can be altered to fit every audience. If I were playing with students who knew the rules of chess, they could have included questions about how the chessmen move!