Building Mental Models

Part 1: As the teacher does a demonstration with the “Think-a-dot” game, she will pause for you to answer the following questions. (Be sure to use complete sentences, of course!)

Prediction #1: ______________________________________________________________
Correct? [ ] Yes [ ] No

Prediction #2: ______________________________________________________________
Correct? [ ] Yes [ ] No

Prediction #3: ______________________________________________________________
Correct? [ ] Yes [ ] No

Prediction #4: ______________________________________________________________
Correct? [ ] Yes [ ] No

Prediction #5: ______________________________________________________________
Correct? [ ] Yes [ ] No

Part 2: Answer the following questions after the demonstration is completed.

1. For MOST people, their first prediction is not correct. Why not? ______________________
_________________________________________________________________________

2. What is the number of the prediction that was YOUR first accurate prediction about the behavior of the “Think-a-dot” game? __________________________

3. As you continued to observe the demonstration, what were you building? (Hint: What is the name of this activity?) __________________________

4. Predictions SHOULD become more accurate as more observations are made. Explain why this is so: __________________________
_________________________________________________________________________
_________________________________________________________________________

5. Did your predictions become more accurate? _______ If NOT, explain why:
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
**Part 3:** For this second set of demonstrations, the teacher will again pause for you to answer the following questions. (Use complete sentences, of course!)

**6.** Before the teacher picks up the game, predict what you think will happen if she turns the game upside down.

Prediction: ________________________________________________________________
________________________________________________________________________

What did you observe? ______________________________________________________

Was your prediction correct? ________________________________________________

**7.** Predict what will happen if she turns the game upside down again.

Prediction: ________________________________________________________________
________________________________________________________________________

Was your prediction correct this time? ________________________________________

If your prediction was correct this time, what were you **assuming** about the behavior of the “Think-a-dot” game? (HINT: Think about your notes!) ________________________________________________________________

**8.** Both physical and mental models are based upon what TWO things? ______________
________________________________________________________________________
________________________________________________________________________

**9.** Watch as your teacher drops marbles into the holes at the top of the game. Explain what the marbles are doing as they fall through the game: ____________________________
________________________________________________________________________
________________________________________________________________________

**10.** Watch as your teacher demonstrates the computer program that simulates the “Think-a-dot” game. Is the computer game a physical model, a mental model, or both? Explain your answer.

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CAPS = Capitals, Punctuation, Spelling
I/S = Incomplete sentence