Word Problems with Powers and Exponents

Name: _____ Date: _____

Instructions: Read each problem carefully. Show your working and write your answer in the space provided. Remember: exponents show how many times a number is multiplied by itself.

1. A bacteria colony doubles every hour. If there are 2 bacteria at the start, how many bacteria will there be after 6 hours? Write your answer as a power, then calculate the total.

Power form: _____

Working: _____

Answer: _____ bacteria

2. A chess board has 8 rows and 8 columns. Write the total number of squares as a power, then calculate how many squares are on the board.

Power form: _____

Working: _____

Answer: _____ squares

3. A tree has 5 main branches. Each main branch splits into 5 smaller branches. Each smaller branch splits into 5 twigs. How many twigs are there in total? Express as a power first.

Power form: _____

Working: _____

Answer: _____ twigs

4. A square playground has sides that are 10 metres long. What is the area of the playground? Write as a power and calculate.

Power form: _____

Working: _____

Answer: _____ m^2

5. A stack of paper is made by folding a sheet in half 4 times. Each fold doubles the number of layers. How many layers of paper are there after 4 folds? (Hint: Start with 2^1 for the first fold)

Power form: _____

Working: _____

Answer: _____ layers

6. A cube has edges that are 3 cm long. What is the volume of the cube? (Volume = length × width × height)

Power form: _____

Working: _____

Answer: _____ cm^3

🌟 **Challenge Problem:**

If 10^4 people attended a concert, how many people is that?

Answer: _____ people