

ACTIVITY -15

TOPIC: EXPONENTS AND POWERS

TITLE: REPRESENT EXPONENTS

1. **What we have to do?**

To demonstrate exponents by paper folding

2. **What is required?**

Coloured thin paper, a pair of scissors and geometry box.

3. **How much time is required?**

30 – 40 minutes

4. **What do you need to know?**

Knowledge of Multiples.

5. **How will you proceed?**

- a. Draw a square of any size on a coloured thin sheet and cut it out.

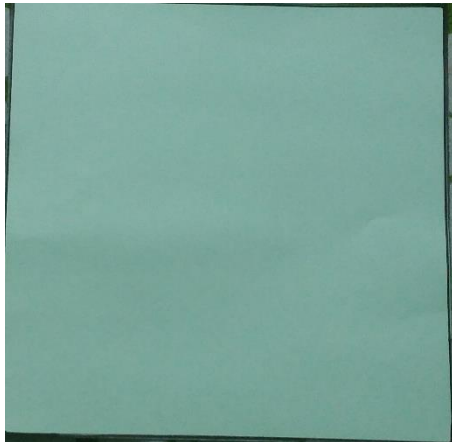


Fig.1

As, this squared paper has no fold. So, it will represent $2^0 = 1$.

- b. Fold this paper one time into two halves making a vertical crease as shown in the Fig.2

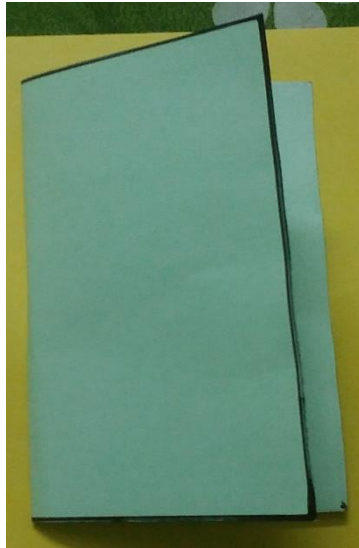


Fig.2

- c. Then unfold the paper, the fold divides the paper into two equal parts as shown in Fig. 3

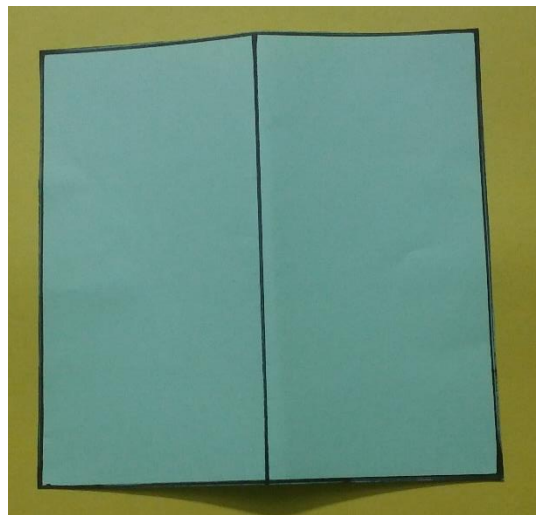


Fig.3

As, this squared paper has one-fold. So, it will represent $2^1 = 2$.

- d. Now, fold the paper into two halves making a horizontal crease as shown in Fig.4

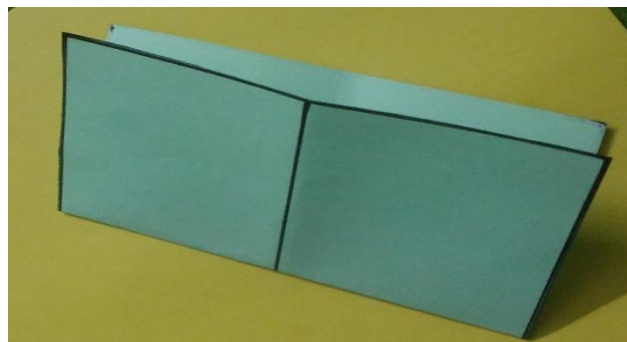


Fig.4

- e. Again, unfold the paper, the fold divides the paper into 4 equal parts as shown in Fig. 5.

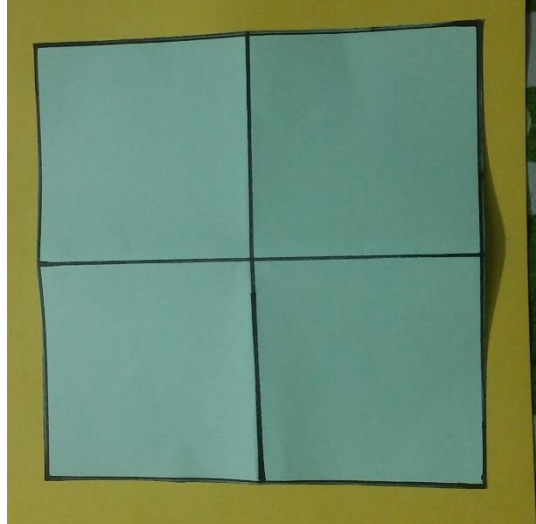


Fig.5

As, the paper has two folds as shown in Fig.5. So, it will represent $2^2 = 4$.

- f. Similarly, make horizontal creases with the help of three folds as shown in Fig.6

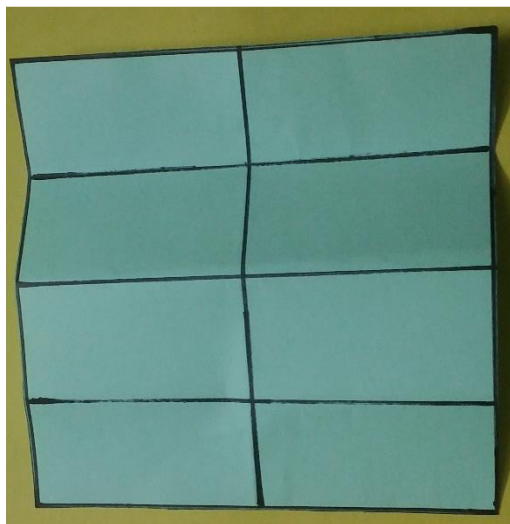


Fig.6

As, the paper has three folds as shown in Fig.6. So, it will represent $2^3 = 8$.

- g. Now make vertical creases with the help of four folds as shown in Fig.7

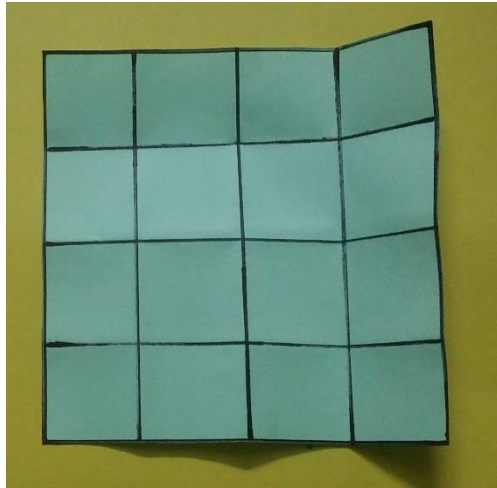


Fig.7

As, the paper has four folds as shown in Fig.7. So, it will represent $2^4 = 16$.

6. **What have you observed?**

- How many folds will be required for getting 32?
- 2 to the power _____ = 64

7. **What have you learnt?**

8. **Extended Activity:**

Find the value of p in the following:

$$8 \times 2^{p+2} = 32.$$

Real life Applications:

The above concept is used in our day-to-day life incidents viz. Computer operations, in banking operations, market place, to represent very large numbers etc....