CS pathshala
Bringing computational thinking to schools

1. Look at the following. Circle the 'matching' things and underline the 'different' things. Identify the pattern. Can you create a template to generate more phrases in the same pattern? 1st example is done for you.

   a. Ram enjoys origami. Sita enjoys reading. Ramesh enjoys cricket.

      Template: _____ enjoys _____

   b. Triangles have 3 sides. Squares have 4 sides. Octagons have 8 sides.

   c. Oranges provide vitamin C. Spinach provides iron. Bananas provide potassium.

   d. I saw a cloud in the sky – it looked like a cabbage! I saw a shadow on the moon – it looked like a face! I saw dust on my table – it looked like a rabbit!

   e. Cotton grows well in black soil. Millets grow well in dry soils. Rubber grows well in laterite soil.

2. Can you fill the blank in each of the following?

   a. 1, 2, 3, 4, 5, 6, 7, ____

   b. 1, 5, 9, 13, 17, 21, ____

   c. 1, 4, 9, 16, 25, 36, ____, 64

   d. 7, 14, 21, 28, ____

   e. 3, 6, 12, 24, 48, ____ 192

3. Look at the pairs of items given below. Can you write one or two 'similar' things about them and one or two 'different' things? The first one has been done for you.
   a. [Square, Rectangle]
   Similar: (i) Both have 4 sides (ii) both have 4 right angles!
   Different: (i) All sides of a square are equal but only opposite sides of a rectangle are equal.
   b. [Aeroplane, Bird]
   c. [Pencil, Pen]
   d. [Alligator, Fish]
   e. [Candle, Electric bulb]
   f. [Glass, Wood]

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4. Observe the following steps.

   1) I have one piece of wood

   2) I break it into half (how many pieces do I have now?)

   3) I break each piece I have into half (how many pieces do I have now?)

   4) I break each piece I have into half (how many pieces do I have now?)

   Can you predict how many pieces I will have after 3)? After step 4)? After step 8)?

5. [ADVANCED] Look at the following – can you find the sum of the first 20 odd numbers?

   $1 = 1$ *sum of first odd no = 1*

   $1 + 3 = 4$ *sum of first 2 odd nos = 4*

   $1 + 3 + 5 = 9$ *sum of first 3 odd nos = 9*

   $1 + 3 + 5 + 7 = 16$ *sum of first 4 odd nos = 16*

   $1 + 3 + 5 + 7 + 9 = 25$ *sum of first 5 odd nos = 25*

   $1 + 3 + 5 + 7 + 9 + 11 = 36$ *sum of first 6 odd nos = 36*

   <mark>Hint-hint</mark>: *Observe :*

   $$1 = 1 \times 1,$$

   $$4 = 2 \times 2,$$

   $$9 = 3 \times 3,$$

   $$16 = 4 \times 4, \dots$$

   Now, can you spot the pattern? Can you write the sum of the first N odd numbers?

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