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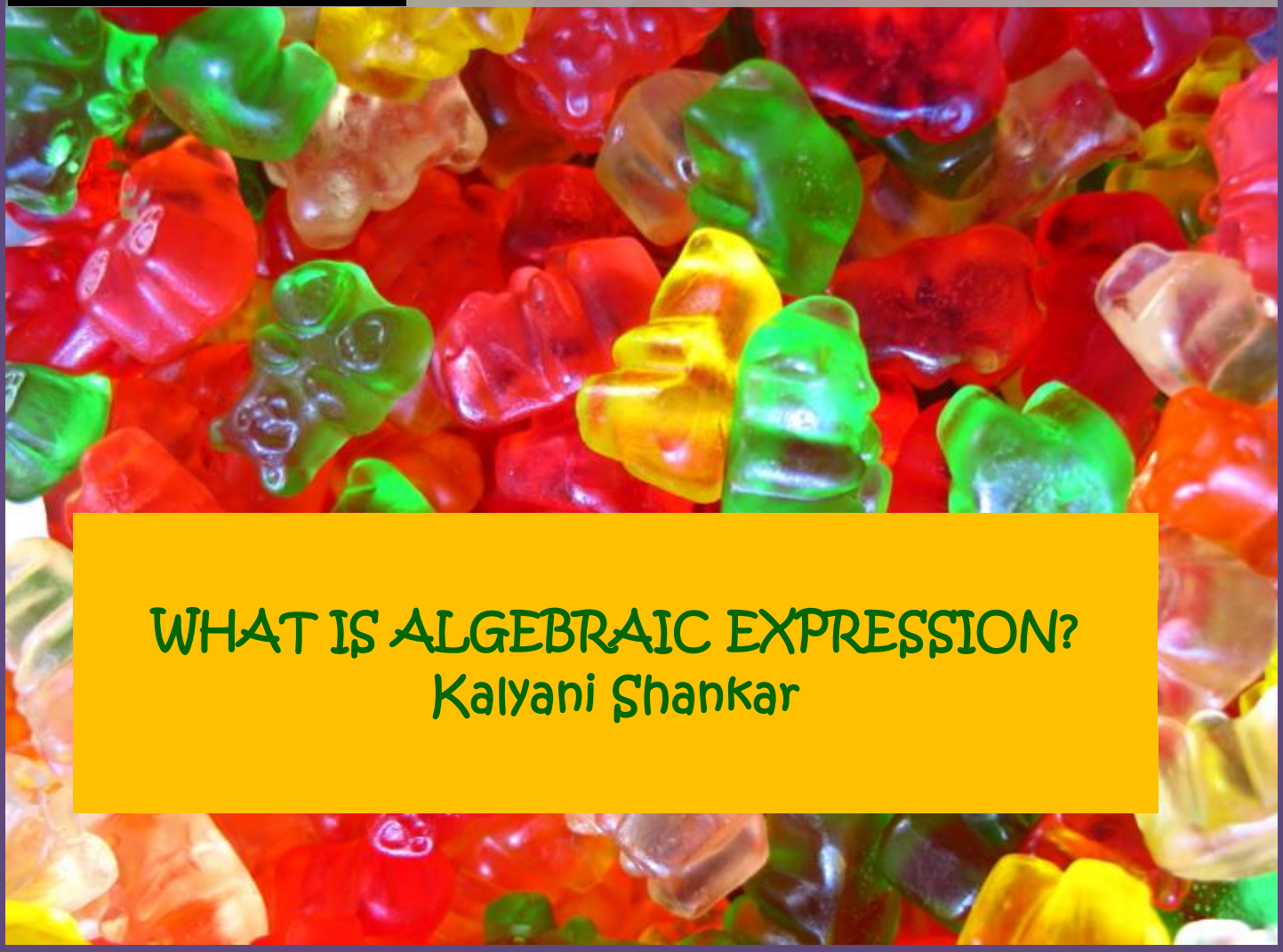
ALGEBRA – BASIC



WHAT IS ALGEBRAIC EXPRESSION?

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ACTIVITY 1

ALGEBRA

WHAT IS AN ALGEBRAIC EXPRESSION?

Materials needed:

- Box (Plastic or cardboard) small size – 10
- Chocolates or plastic beads – 100
- Paper
- Pencil
- Eraser (optional)

Number of students:

Minimum of 2

Conditions:

- Boxes should be of same size and same material.



- Chocolates should of same brand and same size.



- Plastic beads should be of same size and shape probably with different colours.



- Anything else could replace chocolates and plastic beads as long as they are of same shape and size and are made of same material.

In this Activity, *all that has to be done by Student A is given in green* and that to be done by Student B is given in brown.

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Student A: Take 2 boxes. Put 4 chocolates in each box.

Student B: Calculate how many chocolates are used by Student A.

Show steps: $2 \times 4 = 8$

Student A: Take 2 boxes. Put 5 chocolates in each. Ask student B to calculate the number of chocolates used now. (Student B calculates and shows the step)

Now use the same 2 boxes. Put 3 chocolates in each and keep 2 chocolates separately with the 2 boxes. Now ask student B to calculate the total number of chocolates.

Student B: $2 \times 3 + 2 = 8$ chocolates

Repeat the above process with different number of boxes and with different number of chocolates in each plus the extras. Let student B show the steps and calculate the total number of chocolates.

For example:

3 boxes with 6 chocolates each: $3 \times 6 = 18$

5 boxes with 3 chocolates each with 4 extra chocolates: $5 \times 3 + 4 = 19$

8 boxes with 10 chocolates each with 2 extra chocolates: $8 \times 10 + 2 = 82$

And so on…

Make a table of all the above results as shown below:

Mathematical expression	Number of boxes used	Number of chocolates in each box	Number of extra chocolates	Total number of chocolates used
Eg: 4 x 6 + 8	4	6	8	32

Now, student B makes another table with the same columns and gives more similar expressions in the first column of the above table to student A and asks him to fill the rest of the table.

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Example:

Mathematical expression	Number of boxes used	Number of chocolates in each box	Number of extra chocolates	Total number of chocolates used
Give any expression here eg: 9x 2 + 10	Student A should give answers for these columns			

Now let student A **not** show how many chocolates are being put in each box and ask student B to make similar expression as above.

Example: Take 4 boxes. Put some amount of chocolates in each box (do not show the number of chocolates to student B and see that each box has the same number of chocolates). Tell student B that you have put some 'p' number of chocolates. Ask student B to write the expression for the total number of chocolates.

It should be 4 × p (that's all... can not equate to any number because he doesn't know how many chocolates have been used in total)

So, the Total number of chocolates = 4 × p in this case.

Now change the number of boxes and add some extra chocolates. For example, consider 7 boxes with p number of chocolates and keep 5 chocolates extra.

Now the student B gives the expression: 7 × p + 5

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Now make another table and fill in with more information in the first three columns and ask your partner to fill the rest of the table:

Number of boxes used	Number of chocolates in each box	Number of extra chocolates	Mathematical expression for Total number of chocolates used
Eg; 5	p (change the letter every time you change the number)	4	Student B should fill this column

Give at least 10 different values for the first 3 columns and get the corresponding expressions.

Now both of you have learnt what is ALGEBRAIC EXPRESSIONS!! ☺

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