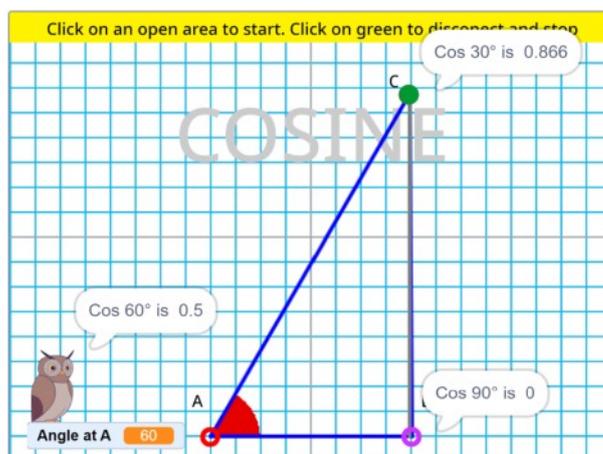


Worksheet will be ready soon

Cosine of an Angle



<https://scratch.mit.edu/projects/407644987>

In this interactive animation, you move the green point (C) at the top of the triangle. The two base points A (red) and B (purple) are fixed. When C moves, the angles change (between 0° and 180°) and at the same time the lines change. The relationships between all the lines change, becoming longer than, shorter than, half the length of, twice the length of etc. The relationship between the angles changes also. In a triangle, they share a total of 180° . In Maths, TRIGONOMETRY, is about the relationship between the sides and angles of triangles.

Learn from this project: (Remember, click the Stage to disconnect).

1. A triangle has three sides and three angles.
2. Each angle has two lines (or arms), and the angle is at the point (or vertex) where the lines meet.
3. In a triangle, the line that connects the two arms of an angle is said to be OPPOSITE the angle.
4. [In our animation] BC is opposite A, it's not part of the angle A.
5. The two arms of an angle are said to be ADJACENT to the angle that they form.
6. The line opposite a RIGHT-ANGLE (90°), has a special name, called a HYPOTENUSE.
7. [In our animation] The grey drop-line from C is perpendicular to AB (90°). It's not part of the triangle, but it makes AC a HYPOTENUSE (adjacent to the angle at A). So also is the left-hand section of AB adjacent to the angle at A.
8. COSINE is a number, between -1 and 1. (Cosine is neither an angle nor a line. It's a ratio.)
9. COSINE is the ratio between the line adjacent to an angle and the hypotenuse.
10. The left-hand section of AB is clearly shorter than the hypotenuse AC. Play around, move C and find out for yourself.

To do 1: Drag to make a right-angle triangle with angles 90° , 30° , 60° . The length of left-hand section of AB is adjacent to 60° and it is exactly $\frac{1}{2}$ the length of the hypotenuse AC. At 30° the length of left-hand section of AB is about 0.86 the length of the hypotenuse. (From the picture in Scratch, draw that special triangle in your copybook)

To do 2: Drag to make a triangle with angles 90° , 45° , 45° . The length of the line adjacent to 45° is about 0.7 of the length of the hypotenuse. (Draw that special triangle in your copybook)