

## Turtle Art

To develop logical thinking and Problem solving ability  
To develop the programming skill through simple games  
Application —▶ Education —▶ Turtle Art

### **Activity 1) To move the turtle along a rectangular path (l=60 , b=40)**

Start---forward 40 --- right 90 --- forward 60 --- right 90 --- forward 40 --- right 90 --- forward 60  
File ---- save as image--- give file name and select location ---- save

### **2) To draw an equilateral triangle ( triangle having equal sides)**

start --- forward 100 --- right 120 --- forward 100 --- right 120 --- forward 100

### **3) To move the turtle along steps**

start ---right 90 --- forward 40 ---left 90 --- forward 30 --- right 90

Repeat this step by clicking on the turtle tool (from the upper right group)

two or three times.

[To clear the lines drawn, click on the rubber tool (the second in the upper right group)]

File --- save as image .....



## Geogebra

An interactive software to draw geometrical figures and patterns, to formulate and analyse geometrical principles.....

Application —▶ Education —▶ Geogebra

To remove the Algebra window : View .....click on algebra

To remove Graphics window : Rt. Click.....click on Axes

To draw a circle : 1. Click on the small triangle in the circle tool.....select circle with centre through point.....click inside the window and drag the mouse .....click again to stop

2. select 'circle with centre and radius' in the circle tool.....click inside the window.....give the value of radius (say 3) ...ok

### **Activity 1) To draw the geometric pattern**

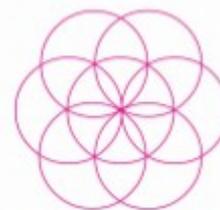
( Std 5 – Maths – Page 55 )

Draw a circle of radius 3 (as in the second method given above)

\*click on this circle (at the right/left side) and give radius as 3...ok

\*Click on the second circle and give the radius 3...ok

\*Click on each of the four intersecting points and give radius as 3 to draw the remaining four circles in the pattern.



### **Additional activity(for teachers only)**

To make geometric patterns using slider

\*Select 'slider' from the Slider tool

\*click inside the window (preferably at the top right side)

\*select 'Angle' and give increment as 5 (you can give any factor of 360) ...ok

\*Select 'Angle with given size' from the Angle tool

\*Click at two points inside the window and give the angle value as  $\alpha$  (the value given to the slider)..ok

Now a third point and an angle appears inside the window

\* select 'circle with centre through point' .....click on the third point and drag the mouse and click on the angle point

\* Rt click on the circle generated .....trace on

\* Rt click on the slider ..... animation on

A pattern will be generated with 72 circles ( 360/5) We can increase /decrease the number of circles in the pattern by changing the increment while making the slider)

**Activity 3) To show that the sum of the angles in a linear pair(രേഖീയ ജോടി) is 180°**

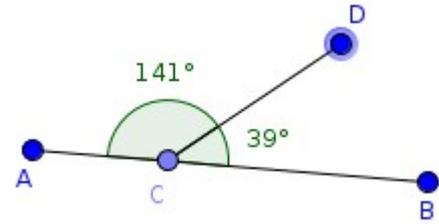
\*Draw a line segment selecting 'segment' in the line tool

\* draw another line segment , touching the first line at a point

\*select 'Angle ' in the angle tool and click on the three points making an angle in the clockwise direction ( B , C and D) Then click on D, C and A to measure the other angle

(To remove decimal values :Options.....round.....0 decimal place)

\*Drag the second line segment by clicking on D and show that the sum is always 180



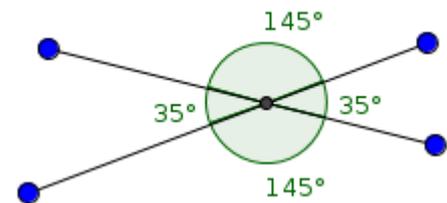
**Activity 4) To show that opposite angles (എതിർ കോണുകൾ ) are equal**

\* draw two line segments cutting each other

\* mark the intersecting point(കൂട്ടിമുട്ടുന്ന ബിന്ദു) using point tool

\*measure each of the four angles using Angle tool

By moving one line (by clicking and dragging at the end point) we can show that opposite angles are equal



**Additional Activity**

Angles formed when a pair of parallel lines(സമാന്തര വരകൾ) are cut by another line

To draw parallel lines:

\*Draw a line segment and a point (above or below)using the corresponding tools

\*Select 'parallel line' from the fourth tool group

\*Click on the line segment and the point already drawn to get the parallel line

\*Draw another line segment cutting these parallel lines

\*Mark the intersecting points using the point tool

\*Measure all the eight angles formed , using the 'Angle" tool

Properties:

1)Corresponding angles(similar angles) equal

(സമാന കോണുകൾ തുല്യം)

$A=E$  ,  $B=F$  ,  $C=G$  ,  $D=H$

2) Alternate angles equal

(മറു കോണുകൾ തുല്യം)

$C=E$  ,  $D=F$

3) Co-interior angles supplementary

(ആന്തര സഹകോണുകൾ അനുപൂരകം----തുക 180)

$D+E =180$ ,  $C+F=180$

4) Co-exterior angles supplementary

(ബാഹ്യ സഹ കോണുകൾ അനുപൂരകം--തുക 180)

$A+H=180$  ,  $B+G=180$

