CHAPTER: Shapes and Angles

Grade: **5**
Board: **CBSE**
Book: **NCERT**

1.

Chapter Summary and Placement

<Read through the following to understand how this chapter is connected with the previous and next grades and also the important concepts covered in it.>

1. This chapter helps students to learn about different types of angles and identify them in the environment
2. Knowledge of this chapter will help students to estimate and measure angles.

2.

LEARNING OUTCOMES

<On completion of the chapter, students will be able to:>

1. Get the feel of an angle through observation.
2. Identify right angles and classify angles into three categories with respect to right angles
3. Identify angles in the environment
4. Draw and measure angles

3. TEACHING PLAN

Follow this section for getting ideas on teaching the content covered in the chapter. The subtopic given in the first column with the matching learning outcome can be explained using instructions and resources listed subsequently

Subtopic and Learning Objective #1

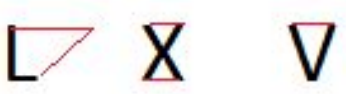
Subtopic:
Open or Close

LO:
Get the feel of an angle through observation.

1.To make the student identify open and closed shapes

Teacher Activity

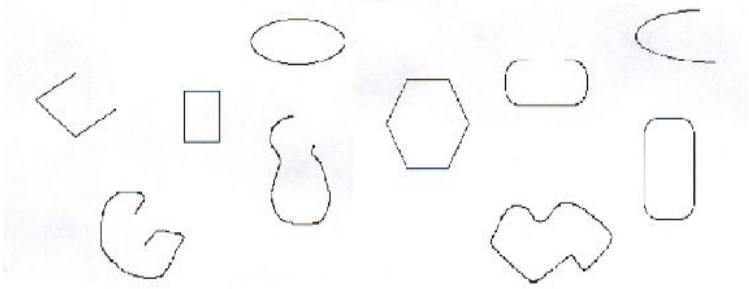
1. Draw a big ‘L’, a big ‘X’ and a big ‘V’ on the board. Explain that these all are open shapes. An **open shape** is made up of line segments, but there is at least one line segment that isn't connected to anything at one of its endpoints.
2. Now close all the above shapes as follows



Explain that these have become closed shapes. A **closed shape** is a space that is totally enclosed by lines.

1. Ask the students to count the number of sides that each figure has(4, 6, 3)

Check for understanding:
Colour the open shape blue and closed shapes red



Resources Suggested

Blackboard, pen and paper

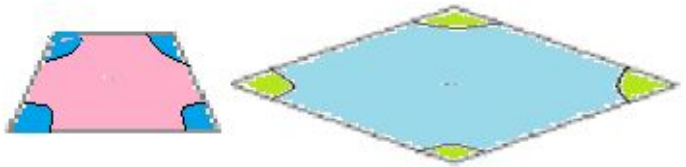
Subtopic and Learning Objective #2

LO:
Get the feel of an angle through observation.

1. To make the students understand that how angles determine the shape of a polygon.

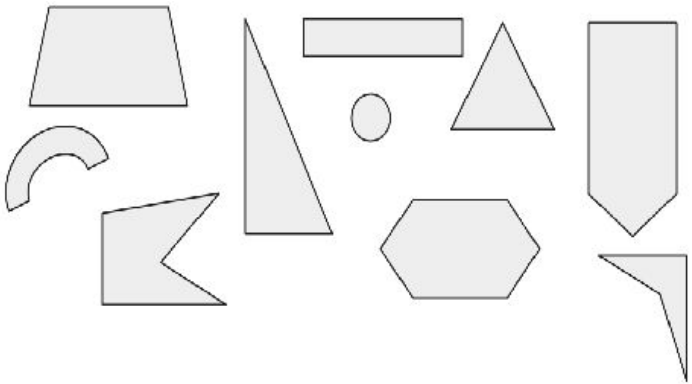
Teacher Activity

1. Using the closed shapes above, ask the students if they can draw more shapes with
   a. 3 sides
   b. 4 sides and
   c. 6 sides
2. Discuss how shapes can differ even when the number of sides is the same. Explain that this is due to differing angles. An angle is formed when two lines meet at a point. Angles are commonly drawn as an arc as shown below.



Teacher Activity

Check for understanding:
Mark all the angles in the given shapes

1. 

Resources Suggested

Blackboard, pen and paper

Subtopic and Learning Objective #3

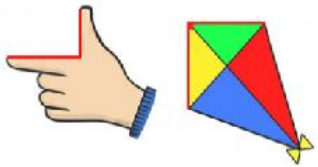
Subtopic:
Right Angles

LO:
Identify right angles and classify angles into three categories with respect to right angles

1. To make the student classify angles into three categories with respect to right angle

Teacher Activity

1. Ask the students to look around and find if they can see any angles around. Explain that angles can be of three types - right, less than right and more than right.
2. Explain right angle with examples of corner of the blackboard, the corner of table the corner of window and door and also the angle formed by our thumb and forefinger.



3. Discuss angle that are greater than Right angle

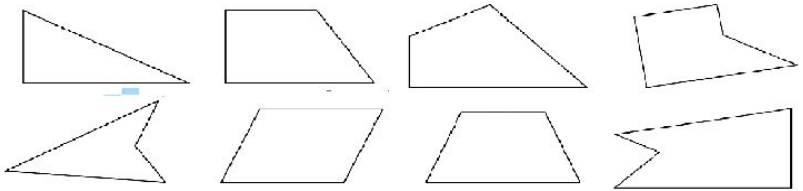


Teacher Activity

4 Explain the use of the divider to find if the angle is big or small.

Check for understanding:

Use the divider to check and mark the right angles red. Mark the angles bigger than right angles green and mark the angles smaller than right angles blue.



Activity 1 can be performed to make class create angles with their body

Resources Suggested

Blackboard, pen and paper

Subtopic and Learning Objective #4

Subtopic:
Right Angles

LO: Identify right angles and classify angles into three categories with respect to right angles

1. To make the student classify angles into three categories with respect to right angle

Teacher Activity

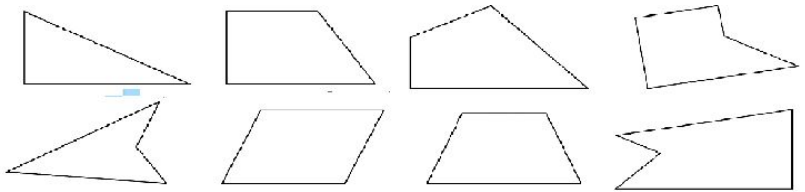
4 Explain angles that are bigger than right angle



5.Explain the use of the divider to find if the angle is big or small.

Check for understanding:

Use the divider to check and mark the right angles red. Mark the angles bigger than right angles green and mark the angles smaller than right angles blue.



Resources Suggested

Blackboard, pen and paper

Teacher Activity

Activity 1:
Name of the activity- Angles with your body
Type of activity – Individual
Use it for – Making the students understand angles
Materials – Pen and notebook
Procedure:
Instructions to the teacher

1. Ask the students to try the instructions given below with their body and then make stick drawings in their notebook.
    a. A right angle with your arm
    b. An angle more than a right angle with both your legs
    c. A right angle with your hand
    d. An angle less than a right angle with your neck
    e. A right angle with your leg
    f. An angle less than a right angle with your leg
    g. An angle more than a right angle with your arm
2. Next, ask one student at a time to come forward and show a yoga pose or a PT exercise pose.
3. Ask the rest of the class to pick out the angles in the pose and classify them

Subtopic and Learning Objective 5

Sub topic: Angles around us

LO:
Identify angles in the environment

1. To make the student identify angles in the environment around them.

Teacher Activity

1. ake the children to the school garden. Ask them to go around and look the trees, plants and birds and note down any five angles that they can see.
2. Next take them to the playground with swings and ask them to note down any five angles that they can see around them.
3. Similarly, take them to the library, cafeteria, school bookshop and science lab. Let them note down any five angles that they can see around them.
1. Let the students share their notes with each other and discuss in the class.
2. Table format can be seen below

Place	Object/ thing/ bird/ animal	Right angle	More than right angle	Less than right angle

Teacher Activity

Check for understanding:
Find the angles in the following pictures. Label them



Activity 2 can be performed to make class observe that triangles are shapes which are strong.

Resources Suggested

Blackboard, pen and paper

Activity 2

Name of the activity- Changing Shapes
Type of activity – Individual
Use it for – Making the students observe and understand use of triangles in architecture
Materials – Scissors, straws and clay
Procedure:
Instructions to the teacher

1. Tell the students that they have to make geometrical shapes using straws.

2 Ask the students to fold, cut and join the straws using clay to make the desired shapes as shown below.

1.  5, 6 sided shapes using tube the straw.
2. Once the students have made the shapes, ask them to try and push each shape downwards with the tip of their finger. Is there a change in the shape?

Activity 2

7 Ask them to note the answers in their notebook in the table given below:



8 Ask the students which shape did not change and why?

9 Explain that triangles are shapes which are strong and do not change easily when pressed.

10 Show them pictures of bridges, tall buildings etc. and discuss

Subtopic and Learning Objective #6

Sub topic: Angles and Time
LO:
Draw and measure angles

1. To make student draw angles on the face of a clock and read time and angles

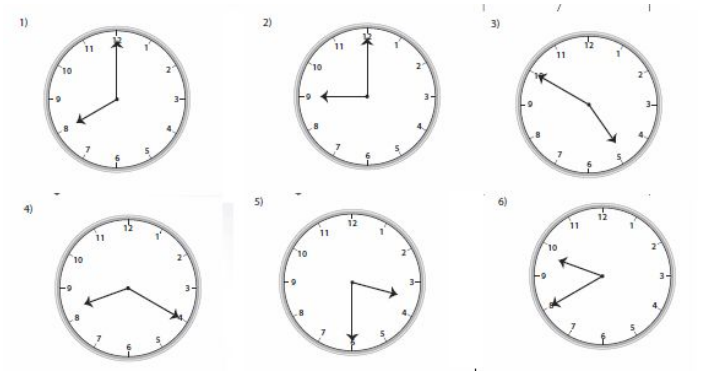
Teacher Activity

Now draw the hands and discuss the angles formed at 3'o'clock, 5'0'clock and so on.

1. Introduce the 'D' or the protractor to the students. Tell them that angles are measured in degrees. The symbol for degrees is a little circle °.

- The FULL CIRCLE is 360° (360 degrees).
- A half circle or a straight angle is 180°.
- A quarter circle or a right angle is 90°

- ***Check for understanding:***
- Write down the time and the kind of angle made by the hands..



Resources Suggested

Blackboard, pen and paper, protracter

Activity 2

Name of the activity- How many degrees?
Type of activity – Group
Use it for – learning to use a protractor
Materials – scale and protractor
Procedure:
Instructions to the teacher:

1. Organize for the big scale and protractor used for drawing on the blackboard.
2. Divide the class into two groups.
3. One student from the group 1 will come to the board and draw an angle with the help of the scale.
4. Group 2 will discuss and guess the measure of that angle and note it on the board. Then one student each from group1 and 2 will come and use the ‘D’ to measure it and note it below the estimated measure.
5. The difference between the measured angle and the guess will be group2’s score.
6. Next it will be group 2’s chance to draw the angle.
7. Ensure that each student gets a chance to come to the board.
8. The group with the lowest score will be the winner.

4. WORKSHEETS

Print or copy the worksheet questions on the blackboard and ask the students to attempt them. They can be given as homework or a class test as well.

Worksheet 1

Use it like: test after the chapter is complete, homework

Draw the hands to form the angle given below each clock and write the time.



60



45



90



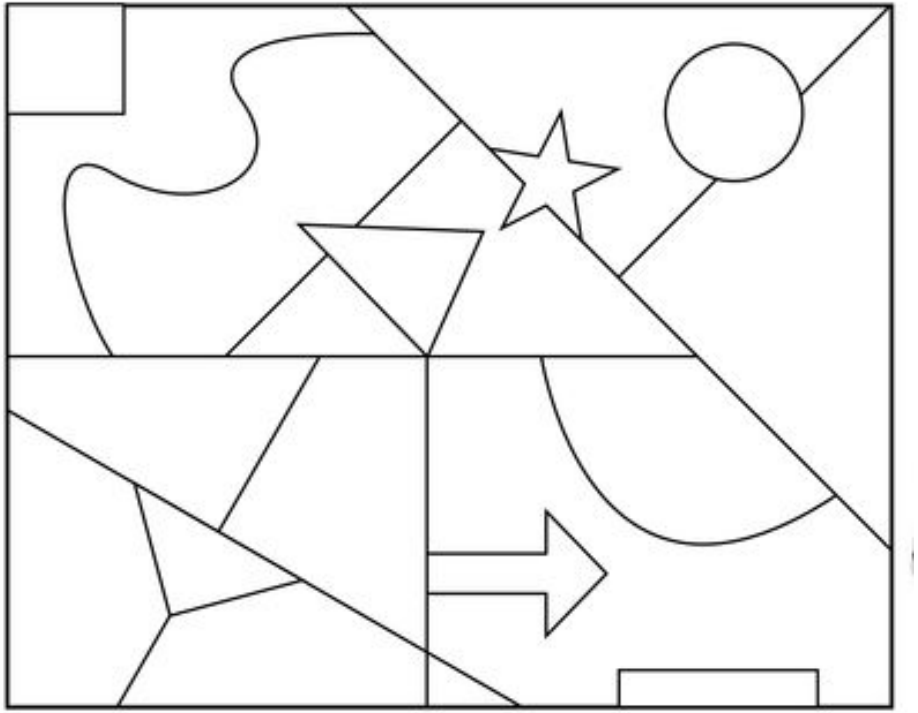
30



180

Worksheet 2

Find and mark right angles in the shape given below:



Worksheet 3

Find the angles in the alphabet below and fill the table :



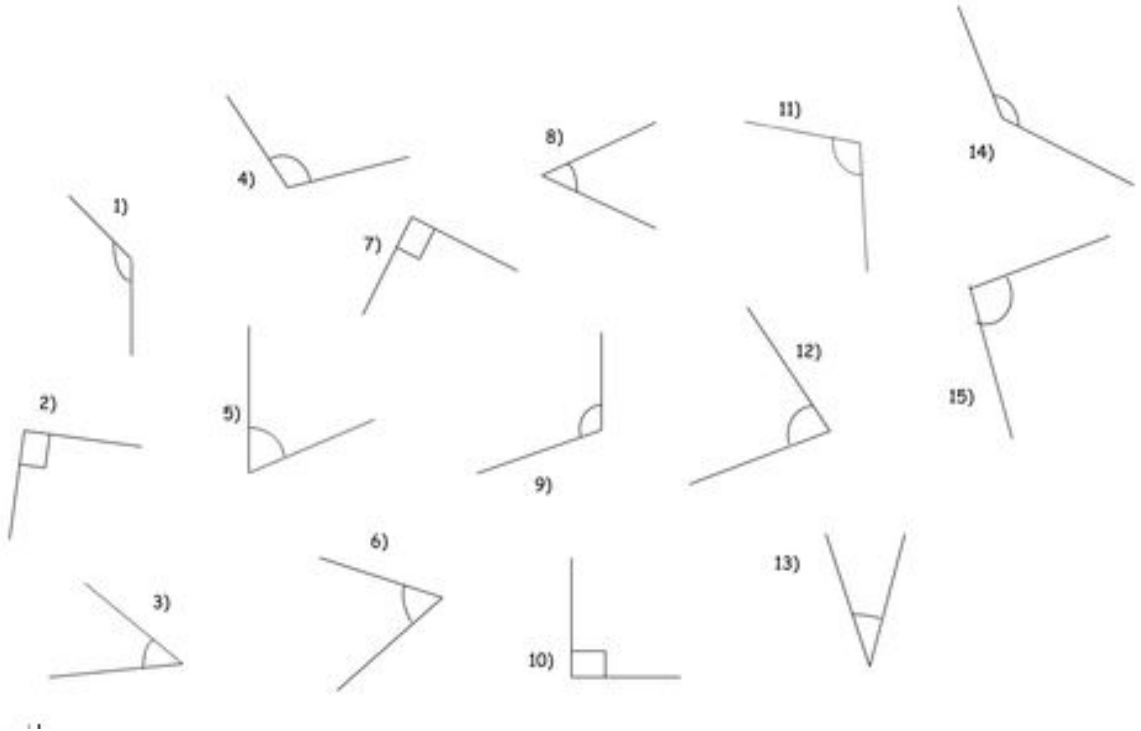
Worksheet 3

Find the angles in the alphabet below and fill the table :

Alphabet	Number of right angles	Number of angles more than a right angle	Number of angles less than a right angle

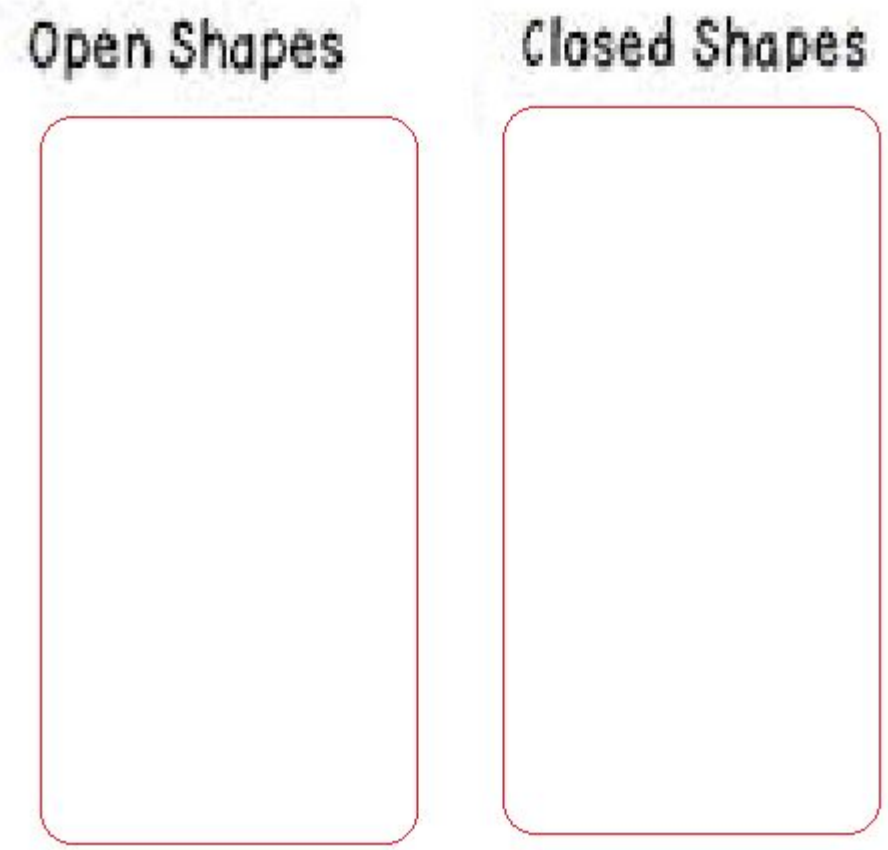
Worksheet 4

Measure the angles



Worksheet 5

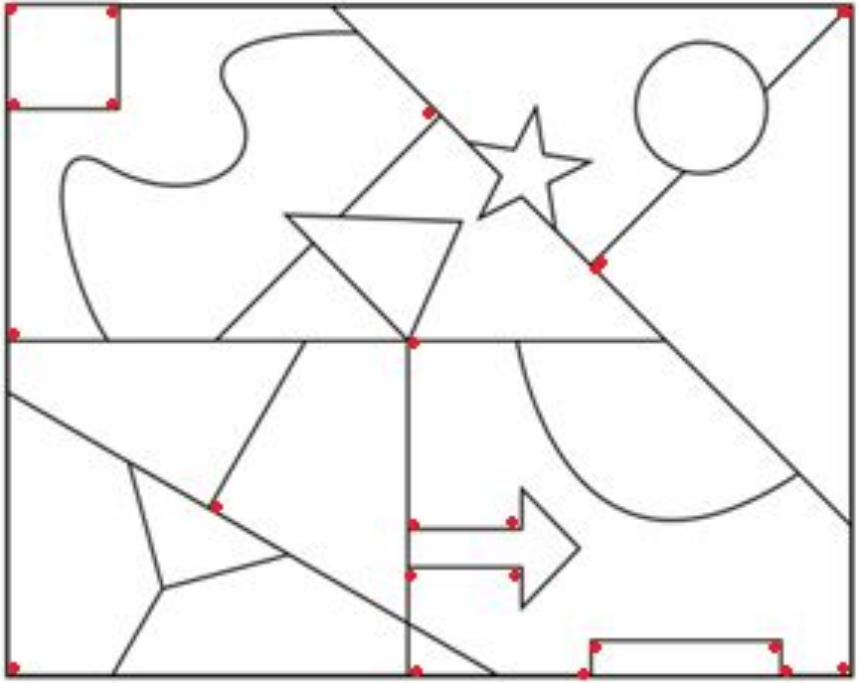
Draw 5 open shapes and 5 closed shapes



5. SOLUTIONS

This section gives you sample answers for activities and questions listed above.

Worksheet 2



Worksheet 3

A=3 **less than a right angle and 2 more than a right angle**
B= -
C= -
D= -
E= 3 right angles
F=2 right angles
G= -
H=2 right angles
I= -
J = -
K =2**less than a right angle and 1 more than a right angle**
L = 1 right angle
M=3 **less than a right angle**
N=2 **less than a right angle**
O= -
P= -

Worksheet 3

Q= -

R= -

S = -

T=1 right angle

U = -

V=1 **less than a right angle**

W=3 **less than a right angle**

X=2 right angle

Y=1 **less than a right angle and 2 more than a right angle**

Z=2 **less than a right angle**

6. EXTRA RESOURCES

Carry out the following suggested activities/ tasks if you have the time and resources to do them

Teacher can use these videos if time and facilities permit:

1. https://www.youtube.com/watch?v=vjWOxc0SrCo Open and close shapes
2. https://www.youtube.com/watch?v=2Kor09g0zp8 Sides and angles
3. https://www.youtube.com/watch?v=NVuMULQjb3o Right angles
4. https://www.youtube.com/watch?v=vB9Fax-9nAs Angles around us
5. https://www.youtube.com/watch?v=UgfSwlqi4Qg Angles in time