

## STUDY OF THE LINE: THE PERPENDICULAR BISECTOR

### Study of the Line, Second Series:

### The Perpendicular Bisector (B4: 20)

#### Material

- Geometry Classified Nomenclature B4 (20)
- Paper
- Pencil
- Compass
- Ruler

#### Presentation

1. On a piece of paper, draw horizontal a line.



2. Place the point of the compass at the left end point of the line and draw an arc above and below the horizontal line.



3. Place the point of the compass at the right end point of the line and draw an arc above and below the horizontal line intersecting the prior arcs.



4. With the ruler draw a line connecting the intersecting arcs above the line with the intersecting arcs below the line “This is the perpendicular bisector of the line.”

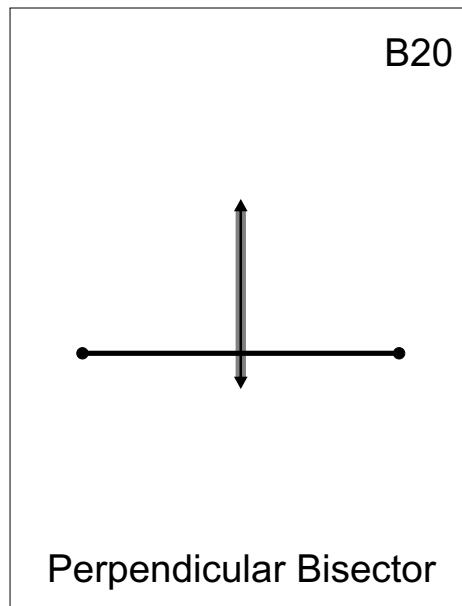


5. Lay out the geometry classified nomenclature card B4 (20) on the work area.
6. Read the definition and match it to the picture. (Latin: ‘bi’ - two, ‘sector’ - cutter)

B20 The perpendicular bisector of a line segment is a perpendicular line drawn through the midpoint of a line segment.

7. Share the Second Series B4 booklet with the children.
8. Display the Second Series B4 wall chart.

**NOTE:** It is suggested that the perpendicular bisector follow perpendicular lines.



## STUDY OF THE LINE: THE RELATIONSHIP OF THREE STRAIGHT LINES

### Study of the Line, Second Series:

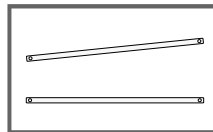
#### The Relationship of Three Straight Lines (B5: 21 - 23)

#### Material

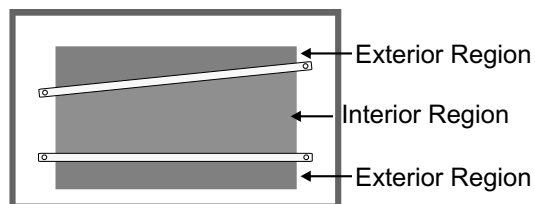
- Geometry Stick Box
- Geometry Classified Nomenclature B5 (21 - 23)
- Paper
- Red and blue pencils

#### Presentation

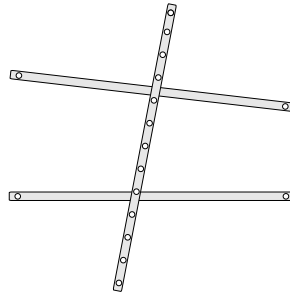
1. Place paper on the board.
2. Take two sticks and tack them to the board. Note that these lines are not parallel and that they actually go on to infinity at both ends. The sticks are only representations of the line. The paper is the plane and both straight lines are on the plane.



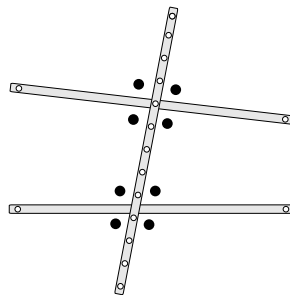
3. The plane is subdivided by these lines into three parts. Color the outer parts of the plane red and the part lying between the two straight lines blue.
4. Name the outer regions exterior and the inner regions interior. The colors help to point out the concept of interior and exterior regions.



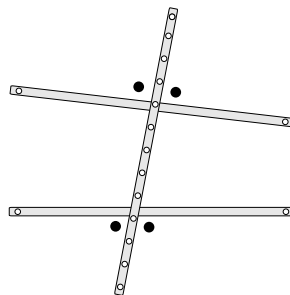
5. Take a third stick with holes all along its length.
6. Place this stick on the first two and give the term transversal. (Latin: *traversare* - to cross.)



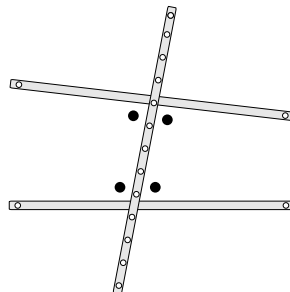
7. Determine how many angles are formed: Place a yellow pen mark at each angle.



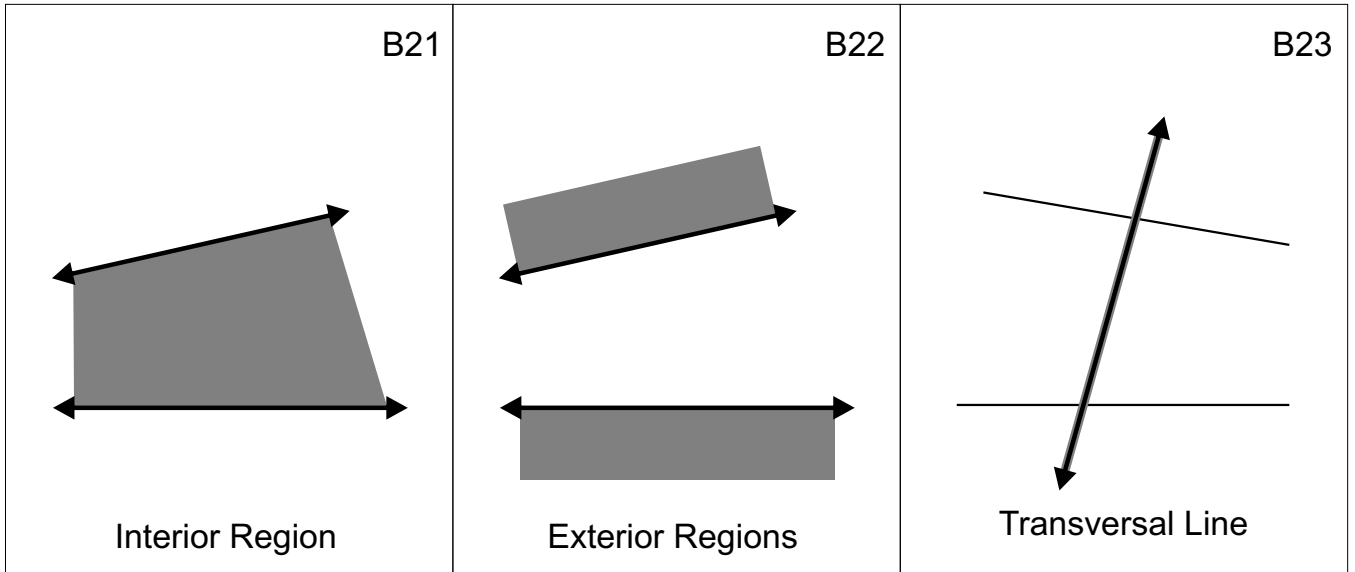
8. Establish which are the exterior angles and which are the interior angles.  
A) Those which lie on the external part are exterior angles. External means outside - in this case outside the two lines. Mark these angles with red tacks.



- B) Those which lie in the internal part are interior angles. Internal means inside - in this case, inside the two lines. Mark these angles with blue tacks.



9. Lay out the geometry classified nomenclature cards B5 (21 - 23) from left to right at the top of the work area.
10. Distribute the labels to the children.
11. Invite each child to read the label and to match it to the picture.
12. Distribute the definitions. Invite each child to read the definition and to match it to the picture.
  - B21 Two straight lines divide the plane into three regions. The interior region is the region that lies between the straight lines.
  - B22 Two straight lines divide the plane into three regions. The exterior regions are the two regions that do not lie between the straight lines.
  - B23 The transversal line is a line that intersects two or more straight lines.
13. Share the Second Series B5 booklet with the children.
14. Display the Second Series B5 wall chart.



## STUDY OF THE ANGLE: PARTS OF AN ANGLE

### Study of the Angle, Third Series:

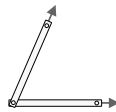
#### An Angle, Parts of an Angle (C1: 24 - 27)

#### Material

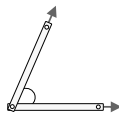
- Geometry Stick Box
- Geometry Classified Nomenclature C1 (24 - 27)
- Two sticks with an arrow taped to one end of each

#### Presentation

1. Recall that each stick with an arrow fastened to it is a ray.
2. Fix the two rays together on the plane by tacking their origins together.



3. Say, "When two rays have the same origin, the figure they form is called an angle."



4. Invite the children to construct angles.
5. "When two rays form an angle, we can call each of the rays a side of the angle. Their shared origin is the vertex of the angle. The space between the sides is called the size of the angle." Label each part as you define it.
6. Continue with a three-period lesson.
7. Lay out the geometry classified nomenclature C1 (24 - 27) at the top of the work area.
8. Distribute the labels to the children.
9. Invite the children to read the label and to match the label to the pictures:  
angle, sides, vertex, size.

10. Then distribute the definitions. Invite the children to read the definitions and to match the definitions to the pictures.

C24 An angle is a figure formed by two rays drawn from the same origin.

C25 The sides of an angle are two rays which form the angle.

C26 The vertex of the angle is the common origin of two rays.

C27 The size of the angle is the measurement of the opening between the two rays. The size of the opening is measured in degrees.

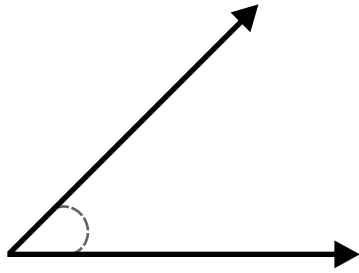
11. Share the Third Series C1 booklet with the children.

12. Display the Third Series C1 wall chart.

NOTE: At this point the presentations on measuring angles and the use of the protractor may be introduced with the lesson on the Sumerians (pp. 187 - 188) or delayed.

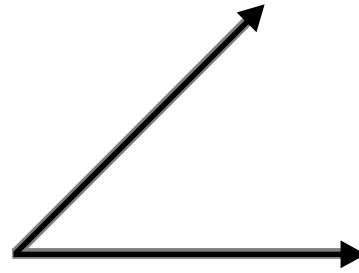


B14



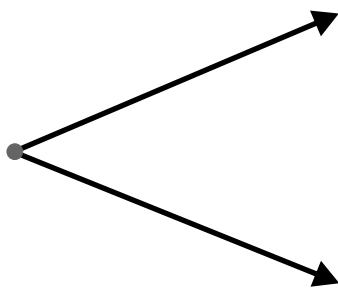
Angle

B15



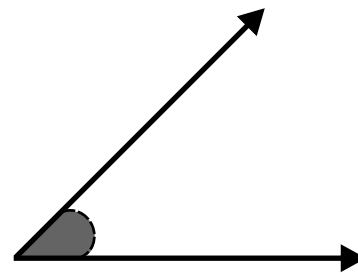
Sides of an Angle

B16



Convergent Lines

B17



Size of the Angle