

Develop the correct ideas, and teach the pronunciation and use of—

1. *Light* and *heavy*,
2. *Heavy*, *heavier*, and *heaviest*,
3. *Light*, *lighter*, and *lightest*,
4. Large (in size) and light (in weight),
5. Small (in size) and heavy (in weight).

**Plan.** 1. Have the objects distinctly named; as, *cork*, *iron*, *a sponge*, *a book*, *a feather*, some *packages* (bundles or parcels). Let the children talk freely about them,—tell the use of cork, iron, or sponge, where the feather grew, and what color it is, etc.

2. Have a pupil stand with arms outstretched at the sides. Place a light object on the tips of the fingers of one hand, and a very heavy object on the other. Lead the class to state that the stone made the arm drop, and the sponge did not. Repeat with various objects and several children.

3. Obtain or teach *light* and *heavy*.

4. Ask the class to find things in the room that are *light*; that are *heavy*.

5. Apply to the paper parcels, and lead them to state what we must do to find out if anything be light or heavy.

6. In review, have the pupils apply two or more terms to the objects found; as, The poker is *short*, *thick*, *heavy*; the *long*, *light* pointer, etc.

**Place.** By proper questioning and by a suitable arrangement of objects, lead the class to pronounce and use correctly the ordinary prepositions; as,—

The box is *on* the table.  
The pencils are *in* the box.  
The stool is *under* the table.  
The stove is *by* the window.  
Mary is *near* the fire.  
The bell is *between* the box and the book.  
They knocked *at* the door.  
We rode *down* the hill.  
We walked *up* the hill.  
They ran *from* the dog.

**Caution.** 1. Do not allow the use of "*frum*" for *from*; "*uv*" for *of*; "*ewt*" or "*deown*" for *out* or *down*.

**Form.** During the latter half of the year the class may be taught objectively a few words which express *form*; as,—

1. All that we can see or touch of the ball (the box, the block, etc.) is its *surface*.

**Plan.** 1. Have the objects named.

2. Hold up a ball, and ask what it is. How do you know?

3. Take the ball and show me all of it that you can see. Touch all of the ball that you can see.

4. Repeat with various objects and several children.

5. Who knows what to call all that we can see or touch of the ball? Children, or teacher, give term *surface*.

6. Drill on the pronunciation of the word. Application: as,

Take something from your desk and show me its *surface*. Show me all of the surface. What is the *surface* of the box? What (of this block, &c.) am I touching? What (of the ball, etc.) do you see?

2. The ball (egg, apple, etc.) has a *curved* surface.

**Plan.** Push a ball, and then a box. Lead the class to say that the ball rolled; that it rolled on its surface; that the egg (apple, etc.) rolls on its surface; that the box, book, etc., will not roll. Teach "*curved surface*," and apply to objects in and out of school; or which may be brought to school; as a lemon, marbles, a grape, an orange, etc.

3. The box (block, book, etc.) has a *plane* surface.

**Plan.** Review *curved surface*. Teach *plane surface* by a similar plan.

4. This is a *face*. These are *faces*.

5. The face on which the block will roll is a *curved face*. A face on which the box will stand is a *plane face*.

**Plan.** 1. Hasty review of *surface*, *curved surface*, and *plane surface*, with application to the objects to be used in the lesson.

2. Call attention to something shaped like a hemisphere (or cylinder). Show all the surface. Show that it will both roll and stand.

3. Have a child put his hand over the part of the surface on which it will stand; touch every bit of the part; say that he is touching a *part* of the surface; that the box will stand on this part of the surface. Repeat with other objects and different pupils.

4. Find a part of the surface on which this will roll; show all of that part; tell what you are touching. Repeat with objects which have plane surfaces.

5. Teach *face* and *faces*. Apply to many objects. Lead the children to use the terms *curved* and *plane*; to tell what a *curved face* is; what a *plane face* is; and that a *face* is a *part* of the surface.

6. Review with varied application.

6. This is an *edge*. These are *edges*.

7. This is a *straight edge*. This is a *curved edge*.

**Plan.** 1. Take a block or box. Call attention to an edge. Who can take another block and find something on it like this? Apply to the desks, table, etc.

2. Who knows what this is? Drill on *edge*.

3. Find another. Another. What shall we call all of these? Drill on *edges*. Find three edges that are alike.

4. By moving the fingers towards each other on two adjoining faces till they meet on the edge, lead the children to state, "Where two plane faces meet is a *straight edge*." "The edge between a plane face and a curved face is a *curved edge*."

5. Application. Find a face and tell us about it. Say something about this edge. What is a plane face? On what kind of a face will the box roll? Show me all that you can see or touch of the orange. What is it? What kind of a surface has the orange? See if it will roll on its surface. Pick out a block that has one curved face, one plane face, and one curved edge. Take something from the table and tell us all you can about it.

6. Bring something to school that has a plane surface.

8. A picture of a straight edge is a *straight line*. A picture of a curved edge is a *curved line*.

9. This straight line is *vertical*. This line is *horizontal*. This is an *oblique* line.

**NOTE.**—The review of the words taught should be by means of application to new objects. If the pupils were six when they entered school, they will be able to take in connection with the review.

10. This is a *sphere*. This is a (half-sphere) *hemisphere*.

11. This has two curved edges; it has two plane faces, and a curved face between them; it is a *cylinder*.

12. This has six plane faces *just alike*; it has eight corners; it has twelve straight edges; it is a *cube*.

13. This has one curved edge; it has one plane face; it has a curved face that ends in (tapers to) a point called the *apex*; this is a *cone*.

In application of the words which describe lines, the teacher may make a drawing on the blackboard, and have the class point to the various lines and tell what kind of a line each is. Or, the teacher may dictate: "Draw a vertical line. Draw a straight line. Draw a curved line. Draw a horizontal line. Draw a straight line that is neither vertical nor horizontal; what kind of a line is it?" Or, each child may be allowed to make a picture, using a limited number of lines, and describe his picture to the class.

**Minerals.** The list of words to be taught by these lessons must vary in various localities. In every school the children may be taught to distinguish and name,—

MARBLE,	SLATE,	COAL,
GOLD,	SILVER,	IRON,
COPPER,	LEAD,	TIN,
ZINC,	PEBBLES,	SAND,

and the minerals common in their own locality. They should be able not only to name but to say something about each; as, The pebble is *smooth* and *white*. It is *small*, and has a *curved surface*. Iron is *heavy*. This piece of marble is *cold* and *heavy*. Gold is *yellow*, but the coal is *black*. This stone is *large* and *rough*. The sand *sparkles*. The tin is *bright*.

**Sound.** The lessons on sounds may be given in five or ten minutes, as a relief to any slate exercise, or attention to a book or chart. Of course, the eyes must be closed, or the face averted.

**Plan.** 1. With all eyes closed, touch a bell and ask, "What did I do? How do you know? With what did you hear? Show me your ears. How many ears have you? Touch one of them, and say *ear*. Drill. Touch both, and say *ears*. Drill.

2. "All look and listen." Touch two bells, or a glass and a piece of wood. "Close your eyes." Touch one only, and ask, "What did I touch?" Have the class agree. "How could you tell?" Children.