

## Topic: Light and Shadow

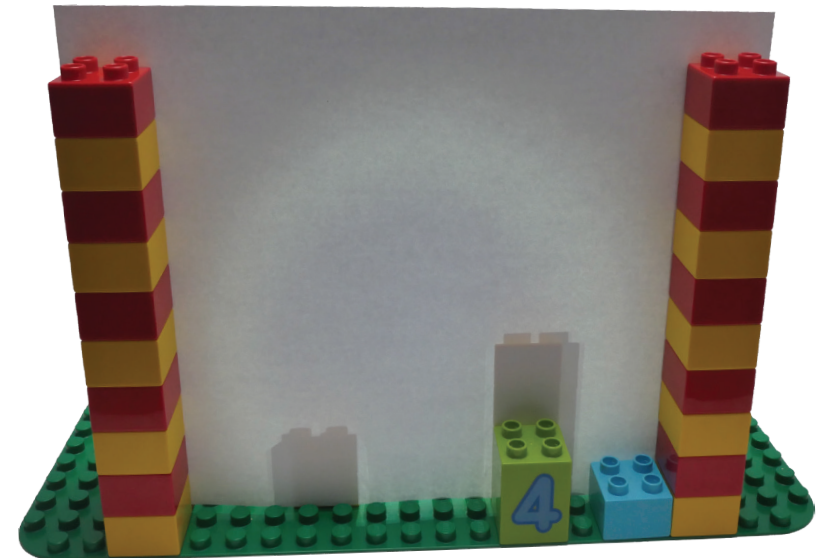
**Resources:** large green baseplate, instruction cards 481 with the corresponding construction material, numeral bricks 1 to 6, 10 solid color 2x2 bricks, white A4 sheet, colored pencil, flashlight, activity card D-2-1.



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### Sequence of activities:

1. The teacher gives each team the necessary resources. They tell the teams to build the shadow screen and flashlight stand. They should then place the flashlight on the stand.
2. The teacher assigns the roles of each child in the team, explaining that after the first trial they will change places. One child will set a problem and the other will solve it. The first child will be behind the flashlight and the second in front of the screen. The child who sets the problem makes sure that the other does not see what they are doing.
3. The first child constructs a model of the first tower shown on the activity card, places it against the screen on their side, four buttons from the left pillar and illuminates it with the flashlight.
4. The teacher draws the children's attention to the shadow that appears on the screen. They explain that any object that is illuminated casts a shadow. There is no shadow when no light falls on the object. The teacher asks the children: "Have you noticed your shadows when you walk down the street in summer?" What light source makes these shadows appear?"
5. The teacher asks the second child to place a 2x2 brick in front of the screen at one end. They are to look at the shadow on the screen and then choose a numeral brick that matches the





number of bricks they think are in the tower. The child places this brick in front of the shadow and says the number. The first child notes the result on the activity card, then lifts up the white sheet. The second child checks if their estimate of the number of bricks was correct.

6. The first child puts the white sheet back. They construct the second tower shown on the activity card, place it against the screen two buttons away from the first tower, and turn on the flashlight. The second child looks at the shadow, compares it to the first, and chooses a numeral brick that matches the number of bricks they think are in this tower. They place this brick in front of the shadow and say the number. The first child notes the result on the activity card, then lifts up the white sheet. The second child checks if he has correctly estimated the number of bricks.

7. The first child puts the white sheet back; removes the second tower from the model, constructs the third tower shown on the activity card, replaces the second with it and turns on the flashlight. The second child looks at the shadow, compares it to the first, and chooses a numeral brick that matches the number of bricks they think are in this tower. This brick they place in front of the shadow and say the number. The first child notes the result on the activity card then lifts up the white sheet. The second child checks if he has correctly estimated the number of bricks.

8. The children dismantle all the towers on the model. Then they switch roles and work with the fourth, fifth and sixth towers shown on the activity card.

9. The children, with their teacher, conclude that a shadow appears when there is a light source. When the light from it comes from behind, the size of the object can be roughly estimated from the shadow.

