

Lesson #3: 2D View to a 3D view (3 Day lesson)

Objectives

Students will be able to...

- Draw a 3D object in three different elevations.

Common Core Standards

LS 11-12.6
RSIT 11-12.2
RLST 11-12.2
Problem Solving and Critical Thinking 5.1
Health and Safety 6.0
Technical Knowledge and Skills 10.0, 10.1, 10.2, 10.3
Cabinetmaking and Wood Products Pathway A1.8, A1.9, A4.4, & A 6.1
Residential and Commercial Pathway D 2.1, D3.1, D3.2, D3.3, D3.4, D3.5, D3.6, D3.7

Materials

Spatial Worksheet 3D to 2D
3 Views Plan, Front, Side Worksheet
Plans and Elevation Worksheet
Elevations of a 3D object Worksheet

Lesson Sequence

It is important to reiterate to students that the ability to visualize a two-dimensional object in three dimensions is difficult for many people. Some people can look at a two-dimensional object on a set of prints and see them in their minds-eye as it were, in three dimensions. For some it will take a lot of practice. Show students how to visualize a two-dimensional object in three dimensions. Use an example and model.

- Have students work with each other on the *Spatial Worksheet 3D to 2D*. Monitor and answer any questions.
- Complete *3 Views Plan Front, Side Worksheet* together as a class.
- Have students work on *Plans and Elevation Worksheet* together.

BUILDING INDUSTRY TECHNOLOGY ACADEMY: YEAR ONE CURRICULUM

- Have students complete *Elevations of a 3D Object Worksheet* independently.

Assessment

Monitor student understanding through questioning and informal observations.
Use independent worksheet to gather an understanding of student mastery of skill.

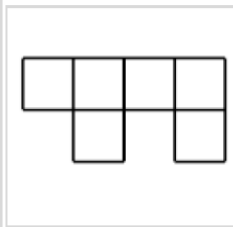
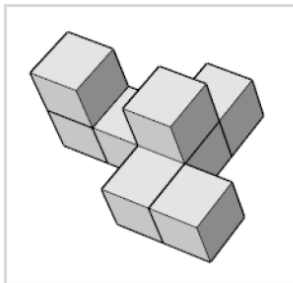
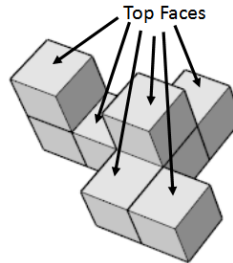
Accommodations/Modifications

One on One Support
Check for Understanding
Strategic Partnering
Extra Time If Needed

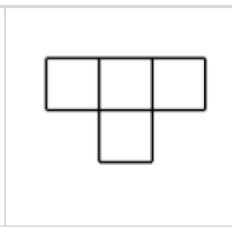
Spatial Worksheet 3D to 2D

Which of the 2D images correctly shows what the 3D shape would look like if viewed from above?

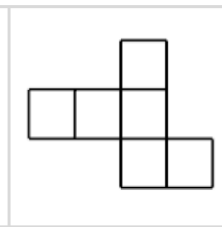
1. Count the top faces - there are 6.
2. Look carefully at the shape:
3. Are there any straight-line cubes?
4. How wide is the shape?
5. How deep is the shape?
6. Are there any gaps?
7. How many rows are there?
8. Any familiar patterns?



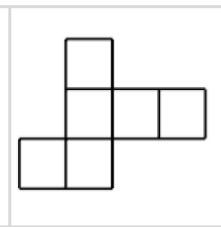
a



b



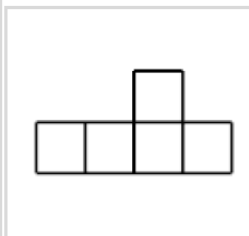
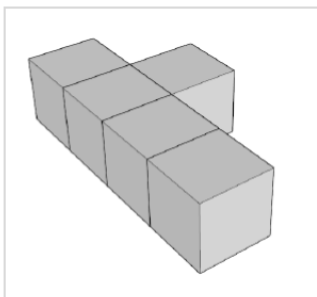
c



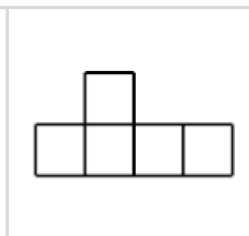
d

The most cubes in a straight line is 3. - Option 'a' has 4 cubes in a straight line. There is a 'L' shape to the right with 2 cubes attached in the middle to the left. - Option C

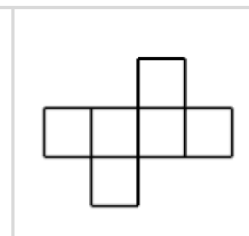
Circle your answer:



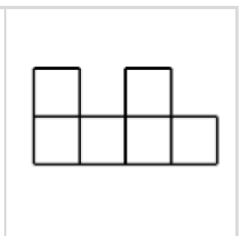
a



b

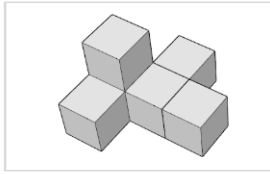
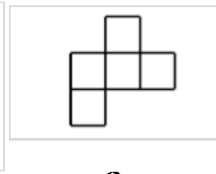
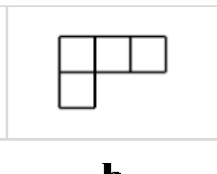
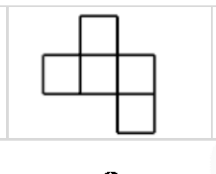
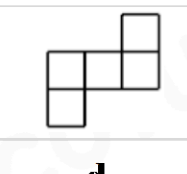


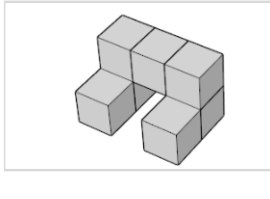
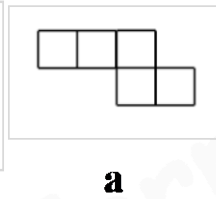
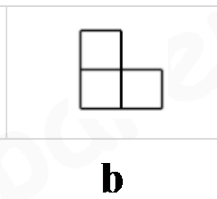
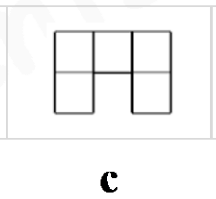
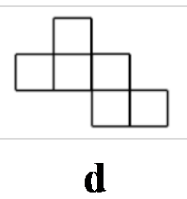
c

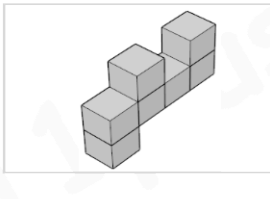
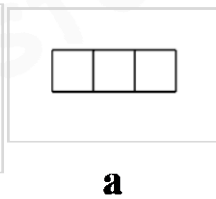
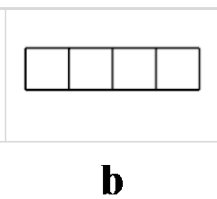
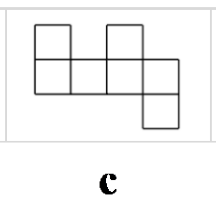
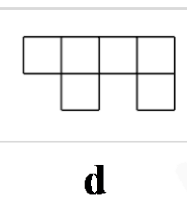


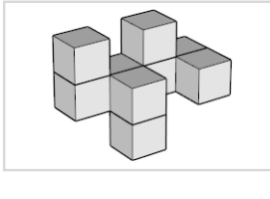
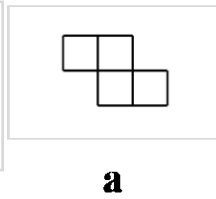
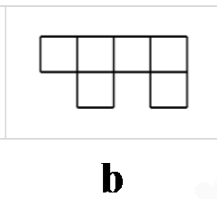
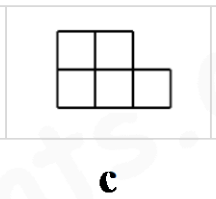
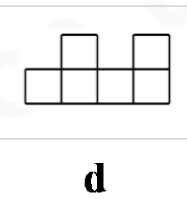
d

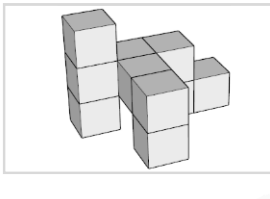
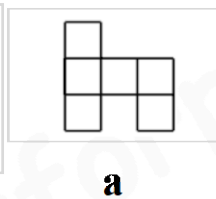
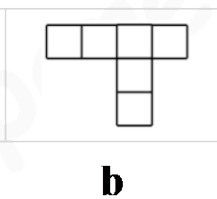
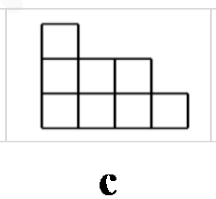
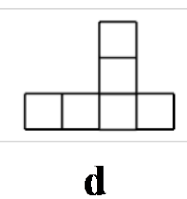
Spatial Reasoning - '3D Shapes - topdown 2D views'

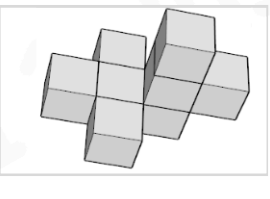
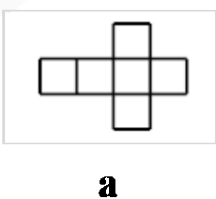
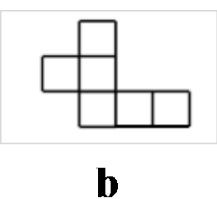
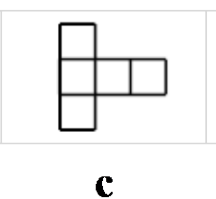
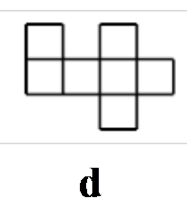
				
	a	b	c	d

				
	a	b	c	d

				
	a	b	c	d

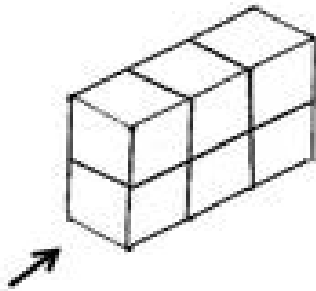
				
	a	b	c	d

				
	a	b	c	d

				
	a	b	c	d

Plan, Front, Side Worksheet

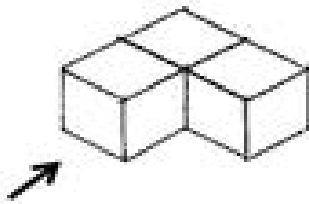
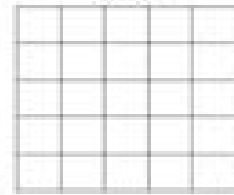
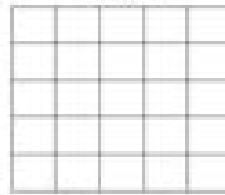
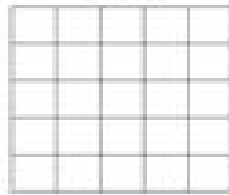
Draw the plan, side, and front view of the basic shapes made from cubes. Color in the 3D shape in three different colors to help you see the different views before drawing them.



Plan

Front

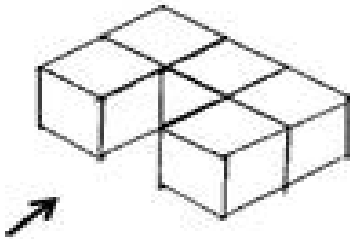
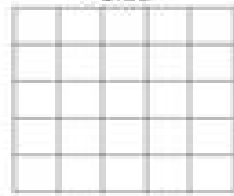
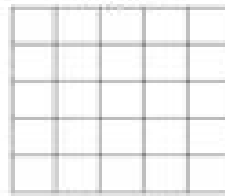
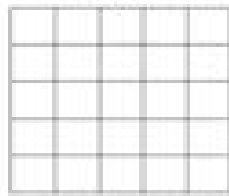
Side



Plan

Front

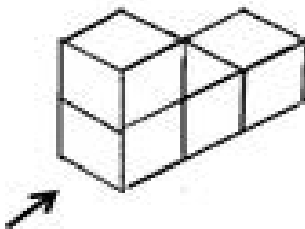
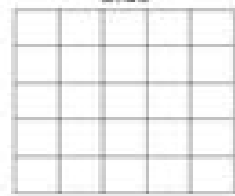
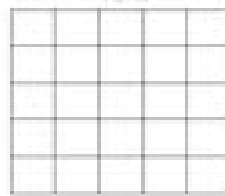
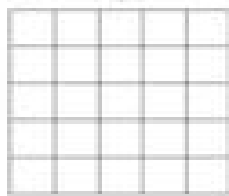
Side



Plan

Front

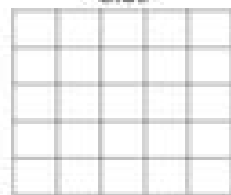
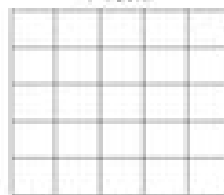
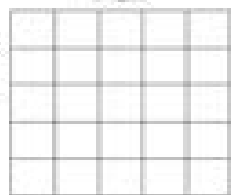
Side



Plan

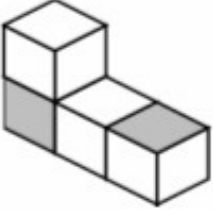
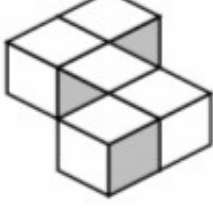
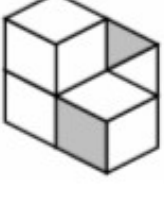
Front

Side



Plans and Elevation Worksheet

Draw the plan views for the isometric shapes.

3D Object	Front Elevation	Side Elevation	Plan Elevation
	<p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p>	<p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p>	<p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p>
	<p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p>	<p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p>	<p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p>
	<p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p>	<p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p>	<p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p> <p>○ ○ ○ ○ ○ ○</p>

Elevations of a 3D object Worksheet

solid	front elevation	right side elevation	plan
