

The following pages include the answer key for all machine-scored items, followed by a sample response for the hand-scored item.

- The rubrics show sample student responses. Student responses other than that shown in the rubric may earn full or partial credit.
- Which responses to hand-scored items receive full or partial credit will be confirmed during range-finding (reviewing sets of real student work)
- If students make a computation error, they can still earn points for reasoning or modeling.

Item Number	Answer Key
1.	A
2.	C
3.	<p>Types of flowers = <u>Purposely changed</u></p> <p>Monarch butterfly preference = <u>Observed for changes</u></p> <p>Time and duration of collecting data = <u>Kept constant</u></p>
4.	Open Ended
5.	<p><u>The rocks were weathered and eroded by water over millions of years.</u></p> <p><u>Sediment accumulated and cemented into layers over millions of years.</u></p>
6.	Fossil X is likely found <u>in a layer above</u> the Coconino Sandstone, and Fossil Y is likely found <u>in a layer below</u> the Coconino Sandstone. The fossil likely found in the topmost rock layer is <u>Fossil X.</u>
7.	Earth position A
8.	<p>Part A = <u>Student plots (350, 19), (400, 18), and (450, 17)</u></p> <p>Part B = <u>Choice C is selected</u></p> <p>Part C = <u>The topmost location is selected</u></p>

9.	<p>System = <u>Medication</u></p> <p>Surroundings = <u>Water, Chemicals</u></p>
10.	<p>Sodium = <u>4.5</u></p> <p>Chlorine = <u>7</u></p> <p>Sodium Chloride = <u>11.5</u></p>
11.	<p>Top = <u>Atom</u></p> <p>Bottom left = <u>Molecule</u></p> <p>Bottom right = <u>Extended structure</u></p>
12.	<p>Part A: <u>C</u></p> <p>Part B: <u>The two substances have different odors. Vinyl chloride is more flammable than polyvinyl chloride.</u></p> <p>Part C: When new substances form, the <u>bonds between atoms</u> change. This results in a change in <u>properties.</u></p>

#4 Open Ended

Example Student Response:

Flower Type 2 has structures that likely make it most pollinated by bees. This is because the flowers are bright yellow, which is attractive to bees, and have a large area where bees can land to access nectar and encounter pollen. Structures that attract pollinators increase the likelihood that pollen will be transferred between flowers and lead to successful reproduction.

1 point: Student identifies Flower Type 2.

1 point: Student describes the color of the flower as visible to bees OR the shape of the flower allows bees to land on it, OR the nectar is easily accessible/visible to bees as evidence.

1 point: Student explains that pollination is needed to increase the likelihood of successful reproduction.