

# LEAP CONNECT

Sample

## **Mathematics Constructed Response**

Directions for Administration

Grades 3-8, 11

## **Purpose**

The LEAP Connect Sample Mathematics Directions for Administration provide specific instructions to practice math constructed-response (CR) items. This document provides the exact wording of the items to be read by the test administrator (TA), the materials needed, and rubrics for how to score student responses.

## **Materials**

Materials needed to administer the LEAP Connect sample math CR items:

1. *LEAP Connect Sample Mathematics Constructed-Response Directions for Administration*
2. *LEAP Connect Sample Mathematics Reference Materials*

## **Guidance on Printed Materials**

The *LEAP Connect Sample Mathematics Reference Materials* include required materials, such as charts and arrays, for administering the CR items. The *LEAP Connect Sample Mathematics Constructed-Response Directions for Administration* include italicized instructions for the TA to follow during the administration of the CR items and instructions on when and how to score the student's response. Since these are practice items, the TA decides if or where to record scores.

The TA must be familiar with and use the graphic descriptions, (in italics and bracketed). Graphic descriptions provide standardized explanations for tables, charts, graphs, and any graphics necessary for appropriate interaction with the CR items.

## **Procedures for Sample CR Items**

A CR item requires the student to construct an answer rather than select an answer from predetermined multiple-choice options. The sample CR items are novel tasks, using materials and content presented to the student in a standardized, scripted sequence of steps, culminating in the TA's scoring of the student's response with the provided rubric. Unlike the actual assessment, the student will not interact with an online platform, and will, at times, need to see graphics from the DTA.

## **Administer the CR Item**

- Become familiar with the sample items and setup requirements.
- Rehearse administering each task before administering it to a student by reading the script.
- Become familiar with the scoring rubric.
- Prepare the setting:
  - Assemble any needed materials (e.g., pencils, markers).
  - Provide any allowable manipulatives (e.g., counters).
  - Have a calculator available.
  - Provide materials required for student accommodations.
  - Position the student so that he or she will have the optimal vantage to view and manipulate materials in order to facilitate sustained attention.
  - Eliminate noise and visual distractions that may divert the student's attention.

- Collect all printed materials that the student will need.
- Enlarge any reference materials, using the enlarge feature on a printer or copier, if needed.
- Locate the appropriate reference material, which is identified by name on the front of each.
- Cut the stimulus materials apart (if applicable).

### ***Scoring the Mathematics CR Items***

In order to have consistent and reliable CR scoring, TAs must understand and apply the rubric in the same way to every student's response.

Independently score a student's response on the CR item while being mindful that students will respond in a variety of ways (e.g., with words, gestures, eye gaze, communication devices, assistive technology) Careful and meticulous observation will enable the TA to accurately assign the appropriate score based on the rubric. Student answers should be entered on the Student Answer Document on page 20.

### ***List of Items***

The LEAP Connect sample mathematics constructed-response items may be used with students in grades 3-8 and 11. The list that follows indicates the grade-level of the skill being measured.

- [Item 1](#) Grade 3
- [Item 2](#) Grades 3 or 4
- [Item 3](#) Grades 3 or 4
- [Item 4](#) Grade 4
- [Item 5](#) Grade 4
- [Item 6](#) Grades 4, 8, or 11
- [Item 7](#) Grades 5 or 8
- [Item 8](#) Grade 11
- [Item 9](#) Grade 11

Provide student with the cut-out printed shapes from Jim's Things and Jim's School Supplies Table from the Sample Mathematics Reference Materials

### Item 1

This item is about completing a data table.

*Place cut-out shapes from Jim's Things in front of student.*

Jim is getting his supplies ready for school.

*Point to the objects and read the graphic description.*

*[Graphic description: "These supplies are pencils. These supplies are books. These supplies are hats."]*

Jim needs 2 pencils, 3 books and 1 hat.

Select the pictures of the supplies he needs and put them into Jim's School Supplies Table.

*Place Jim's School Supplies Table from the Sample Mathematics Reference Materials in front of the student. Point to each part as you read the graphic description.*

*[Graphic Description: "This is a table titled Jim's School Supplies Table. It is divided into three columns. The first column is labeled Pencils. The middle column is labeled Books. The last column is labeled Hats."]*

**Jim's School Supplies Table**

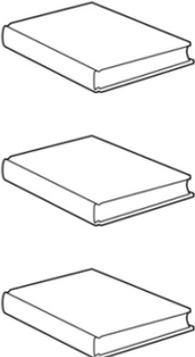
Pencils	Books	Hats

*(The student may communicate answers in whatever modality is most common for them. They may point, move the supplies themselves, eye-gaze etc.)*

**After the student completes their response:** Use this rubric to score the student's response.

Score	Description
1	Student correctly placed two pencils, three books and one hat in the chart.
0	Student does not correctly place the objects in the chart.

Sample Answer

Pencils	Books	Hats
		

Provide student with Piece of Bread and Fraction, Fraction Squares and the Fraction Chart from the LEAP Connect Sample Mathematics Reference Materials. Cut out Fraction Squares.

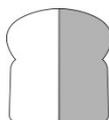
## Item 2

This item is about fractions.

*Place Piece of Bread and Fraction sheet in front of student.*

This piece of bread is divided into 2 equal parts.

*Point to the piece of bread.*



There is one part that is shaded gray.

The fraction shows that 1 of the 2 parts is shaded gray.

$$\frac{1}{2}$$

*Point to the fraction and read it. [Graphic description: "one-half"]*

Present student with a copy of the fraction chart from the LEAP Connect Sample Mathematics Reference Materials. Place it so student may see the chart.

This is a fraction chart.

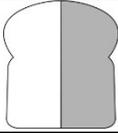
*Point to the chart. Read the graphic description.*

*[Graphic description: "This is a chart that shows two fractions. The first is one-half. The second is one-fourth. To the right of each fraction is space for you to place images that represent the fractions."]*

Fraction	Image
$\frac{1}{2}$	
$\frac{1}{4}$	

The piece of bread shows 1 of 2 parts shaded gray and would go next to  $\frac{1}{2}$  in the chart.

Read “one-half” as you point to the fraction and again when you point to the bread.

Fraction	Image
$\frac{1}{2}$	
$\frac{1}{4}$	

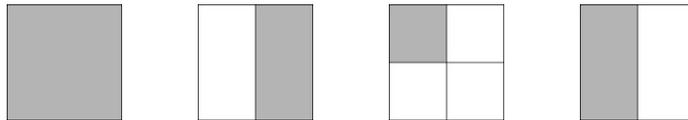
Present the student with cut-out fraction squares. Place each fraction square on the work surface in front of the student in the order described.

These are squares.

Point to individual squares and read the following.

The squares have been divided into parts and some parts are shaded.

[Graphic description: “The first square is completely shaded gray. The second square is divided into two parts with the part on the right shaded gray. The third square is divided into four parts with the part in the top left corner shaded gray. The fourth square is divided into two parts with the part on the left shaded gray.”]



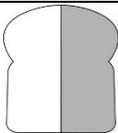
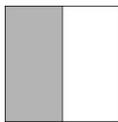
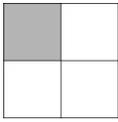
Place each square on the chart next to the fraction it represents. You may not need to use all of the squares.

(The student may communicate answers in whatever modality is most common for them. They may point, move the squares themselves, eye-gaze etc.)

**After the student completes their response:** Use this rubric to score the student’s response

Score	Description
1	Student correctly completed the task.
0	Student did not correctly complete the task.

Sample answer

Fraction	Image
$\frac{1}{2}$	  
$\frac{1}{4}$	

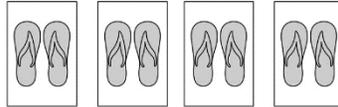
Provide student with the Multiplication Array, Array Blanks and Flip Flop Arrays from the LEAP Connect Sample Mathematics Reference Materials. Cut out Flip Flop Arrays for student to use.

### Item 3

This item is about using arrays to show multiplication.

*Place the Multiplication Array sheet from the LEAP Connect Sample Mathematics Reference Materials in front of the student.*

This array shows the expression **2 x 4**.



*Read expression “two times four” and point to the flip-flops.*

*[Graphic description: “This is an image of eight flip-flops in four boxes. Two flip-flops are in each of the four boxes”]*

Look at these expressions.

*Place the Array Blanks in front of the student. Read and point to each expression.*

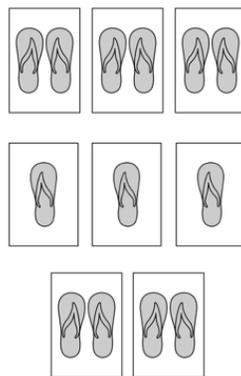
*[Graphic description: “two times two”]* **2 X 2**

*[Graphic description: “two times three”]* **2 X 3**

*[Graphic description: “one times three”]* **1 X 3**

Look at these arrays.

*Place each of the flip-flop arrays from the LEAP Connect Sample Mathematics Reference Materials on the work surface in front of the student. Point to each array and give only the total number of flip-flops in the particular array.*



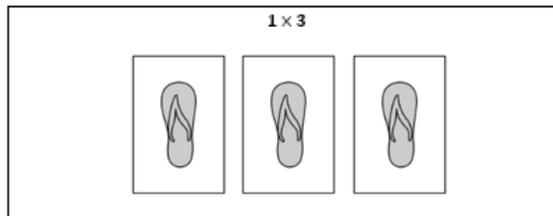
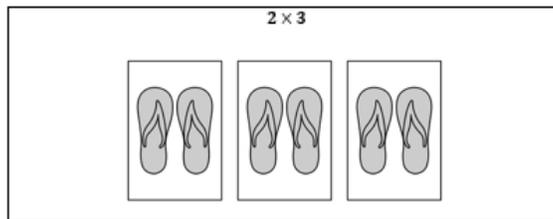
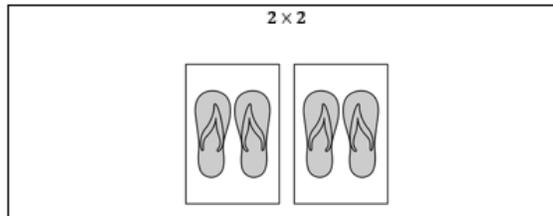
Match each flip-flop array with the expression it represents. Place each flip-flop array in the matching box with the correct multiplication expression.

*(The student may communicate answers in whatever modality is most common for them. They may point, move the flip flops themselves, eye-gaze etc.)*

**After the student completes their response:** Use this rubric to score the student's response.

Score	Description
1	Student correctly matched the arrays and expressions.
0	Student did not correctly match the arrays to the expressions.

Sample Answer



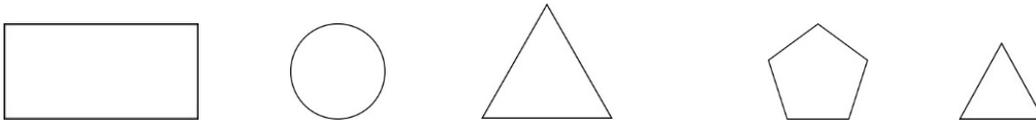
Provide student with the cut-out printed Shapes and incomplete Shape Chart from the LEAP Connect Sample Mathematics Reference Materials.

**Item 4**

This item is about sorting shapes.

These are some shapes.

*Place each shape from the LEAP Connect Sample Mathematics Reference Materials on the work surface in a horizontal line in front of the student. Point to each shape without naming the shapes.*



This is a table labeled “Shapes with Exactly Three Sides”

*Point to the incomplete chart from the LEAP Connect Sample Mathematics Reference Materials.*

<b>Shapes with Exactly Three Sides</b>	

Place the shapes that have exactly three sides in the chart.

*(The student may communicate answers in whatever modality is most common for them. They may point, move the shapes themselves, eye-gaze etc.)*

**After student completes their response:** Use this rubric to score the student’s response.

<b>Score</b>	<b>Description</b>
1	Student correctly placed the two triangles on the chart.
0	Student places a shape that has more than three sides or does not place a shape on the chart.

Sample answer

<b>Shapes with Exactly Three Sides</b>	

Provide student with Lucy's Cupcakes from the LEAP Connect Sample Mathematics Reference Materials. You may cut out the cupcakes for the student to use.

### Item 5

This item is about division.

Lucy has six cupcakes.

*Point to the cupcakes.*



Lucy wants to give all the cupcakes to three friends. She wants each friend to have the same number of cupcakes.

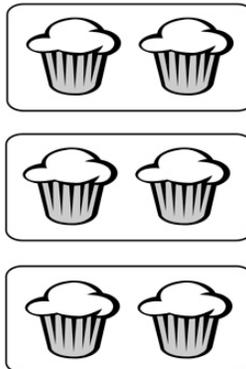
Divide the cupcakes into 3 equal groups.

*(The student may communicate answers in whatever modality is most common for them. They may point, move the cupcakes themselves, eye-gaze etc.)*

**After the student completes their response:** Use this rubric to score the student's response.

Score	Description
1	Student completed the task correctly.
0	Student did not complete the task correctly.

Sample Answer



Provide student with Ways Students Get to School Table and Ways Students Get to School Chart from Sample Mathematics Reference Materials and either a pencil or objects to use as markers.

### Item 6

This item is about using data to make a graph.

*Place the Ways Students Get to School Table in front of the student.*

This data table tells about the different ways students get to school.

*Point to and read the data table.*

*[Graphic Description: "This is a data table labeled Ways Students Get to School. It shows the number of students who ride on a bus to school; the number of students who ride their bike to school, and the number of students who walk to school. Seven students ride the bus. Five students ride their bikes. Three students walk."]*

**Ways Students Get to School**

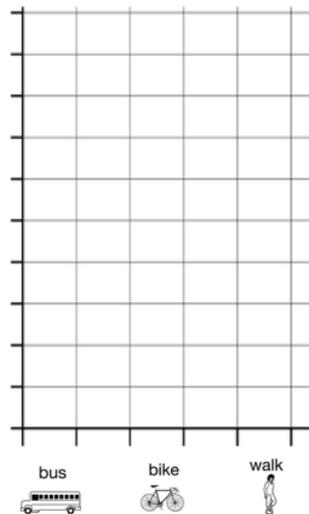
Ways Students Get to School	Number of Students
ride on a bus	7
ride their bike	5
walk	3

This graph can be used to show information from the table.

*Point to the graph as you read the graphic description.*

*[Graphic description: "This is a graph titled Ways Students Get to School. The bottom line has three images that represent the ways students get to school: ride on bus, ride their bike, and walk. The line on the left side has ten equally spaced marks."]*

**Ways Students Get to School**



Complete the graph to show many students get to school by riding on a bus, riding their bikes or walking.

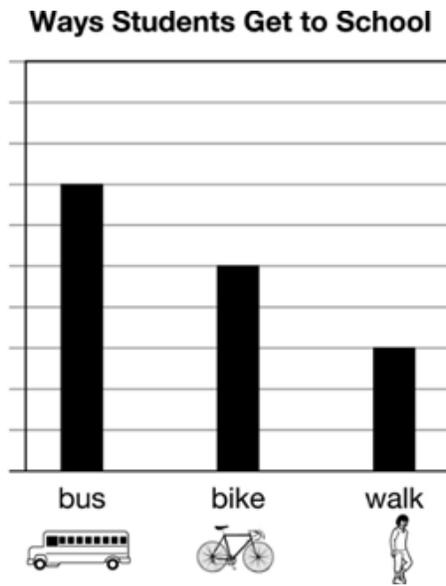
Student may shade or use objects to complete the graph.

(The student may communicate answers in whatever modality is most common for them. They may point, move the supplies themselves, eye-gaze etc.)

**After the student completes their response:** Use the rubric to score the student's response.

Score	Description
1	Student completed the graph correctly.
0	Student did not complete the graph correctly.

Sample Answer



Provide student with the blank Coordinate Grid from the LEAP Connect Sample Mathematics Reference Materials. Provide student with a small object to use as a pointer.

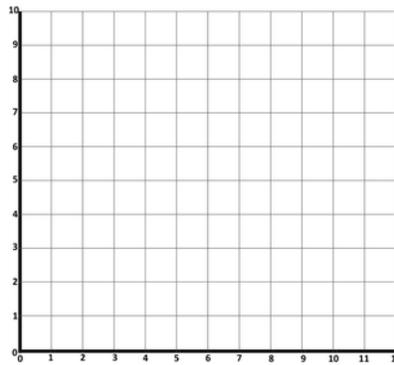
### Item 7

This item is about plotting points.

This is a coordinate grid and a [small object].

*Point to the grid from the reference materials and the small object you have selected.*

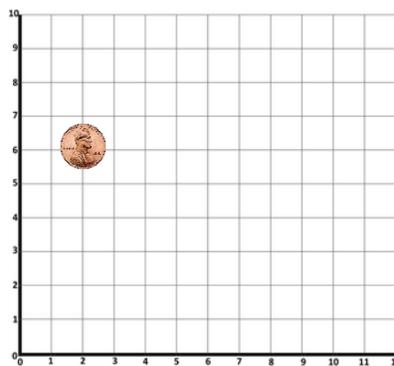
*[Graphic description: "This is a grid. The x-axis starts at zero and has ten equally spaced marks moving to the right. The y-axis starts at zero and has ten equally spaced marks moving upward."]*



This is an ordered pair **(2, 6)**. [Graphic description: "two, six"]

*Read and trace with a finger or small object along the lines to show where the coordinate pair is.*

To plot the ordered pair **(2, 6)** on the coordinate grid, start at the origin. Then move 2 units along the x-axis. From there, move up 6 units.



This is another ordered pair **(5, 8)**. [Graphic description: "five, eight"]

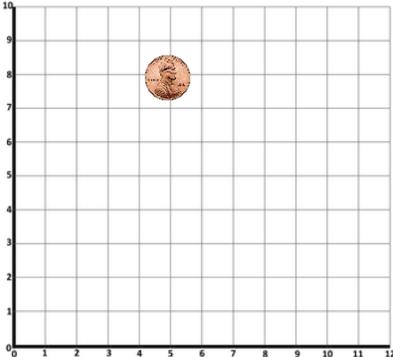
Use the small object to plot the ordered pair **(5, 8)** on the coordinate grid.

*(The student may communicate answers in whatever modality is most common for them. They may point, move the pointer themselves, eye-gaze etc.)*

**After the student completes their work:** Use this rubric to score the student's response.

Score	Description
1	Student correctly identified the location of the coordinate pair.
0	Student did not correctly identify location of the coordinate pair.

Sample Answer



Provide student with Sample Triangles and Triangles from the LEAP Connect Sample Mathematics Reference Materials. You may cut out the triangles for students to use.

### Item 8

This item is about similar triangles.

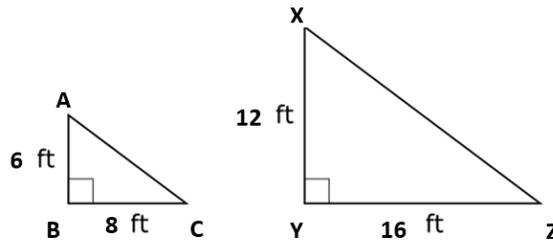
Similar triangles have the same shape but are different sizes.

*Place the Sample Triangles sheet in front of the student.*

Triangle ABC and XYZ are similar right triangles with a scale factor of 2. The sides of XYZ are 2 times the length of the corresponding sides of triangle ABC.

*Point to the dimensions of each side as you read the graphic description.*

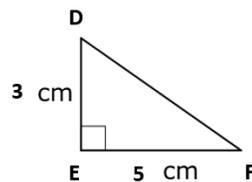
*[Graphic description: "Side AB and side XY are corresponding sides. Side AB measures six feet and side XY measures 12 feet. Side BC and side YZ are corresponding sides. Side BC measures eight feet and side YZ measures sixteen feet."]*



This is another triangle. This is triangle DEF

*Present student with Triangles from the Sample Mathematics Reference Materials  
Point to the dimensions of the triangle as you read the graphic description.*

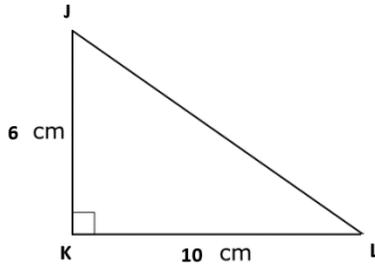
*[Graphic description: "On triangle DEF, angle E is a right angle. Side DE measures three centimeters. Side EF measures five centimeters."]*



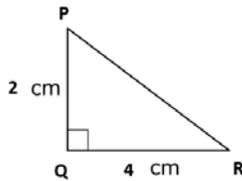
Here are more triangles.

*Place Triangles from the Sample Mathematics Reference Materials in front of the student. Point to each triangle as you read the graphic description.*

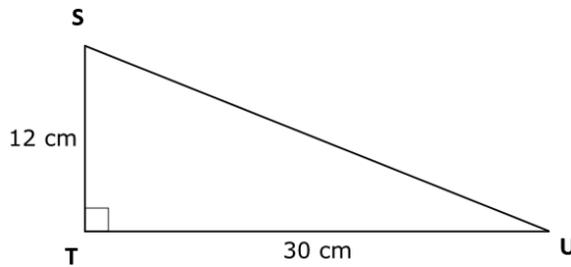
*[Graphic description: "This is triangle JKL. Angle K is a right angle. Side JK measures six centimeters. Side KL measures ten centimeters."]*



[Graphic description: "This is triangle PQR. Angle Q is a right angle. Side PQ measures two centimeters. Side QR measures four centimeters."]



[Graphic description: "This is triangle STU. Angle T is a right angle. Side ST measures twelve centimeters. Side TU measures thirty centimeters."]



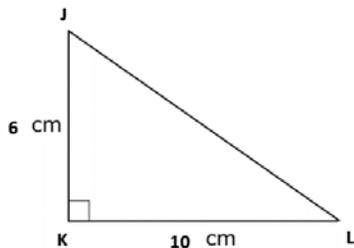
Choose the triangle that is similar to triangle DEF, with a scale factor of 2.

(The student may communicate answers in whatever modality is most common for them. They may point, move the triangles themselves, eye-gaze etc.)

**After the student completes their work:** Use this rubric to score the student's response.

Score	Description
1	Student correctly identified triangle JKL.
0	Student did not correctly identify triangle JKL

Sample Answer



Provide student with Data Values and Histogram from the LEAP Connect Sample Mathematics Reference Materials. Student may use pencil, marker, or tiles to solve.

### Item 9

This item is about making a histogram.

A histogram is a graph that uses bars to display data. The graph uses ranges of data. The height of a bar tells how many data values are in that range.

This is a list of data values. It shows the number of students who attended Spanish Club each of the last 10 days.

*Present student with the Data Values from the Sample Mathematics Reference Materials and point to the list as you read the graphic description.*

*[Graphic description: "This is a list of data values titled Spanish Club. The data are six, seven, eight, ten, eleven, fifteen, sixteen, eighteen, nineteen, and twenty-five."]*

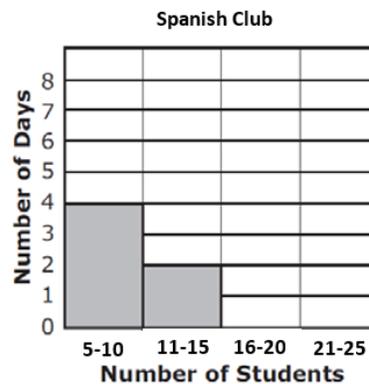
#### Spanish Club

**6, 7, 8, 10, 11, 15, 16, 18, 19, 25**

This incomplete histogram shows the ranges to use for the data. The first two bars are given.

*Present the incomplete histogram from the Sample Mathematics Reference Materials and the instructional materials (e.g., markers or pencils) to the student, and place them onto the work surface in front of the student.*

*[Graphic description: "This is a histogram titled Spanish Club. It shows ranges of numbers of students and the number of days in each range. Four days are in the range of five to ten students. Two days are in the range of eleven to fifteen students. There is no bar given for the range of sixteen to twenty students. There is no bar given for the range of twenty-one to twenty-five students."]*



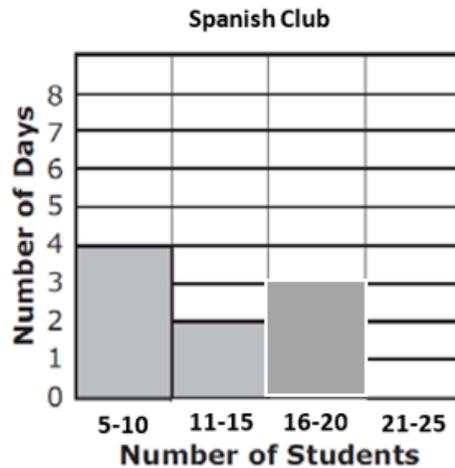
The third bar is for the range of 16 to 20 students.

There is 3 value in the range of 16 to 20 students. The bar is 3 units tall. This is the histogram with the third bar given.

*Point to the bar in the histogram for the range of sixteen to twenty, and the numbers sixteen, eighteen, and nineteen in the list.*

[Graphic description: “This is a histogram titled Spanish Club. It shows ranges of numbers of students and the number of days in each range. Four days are in the range of five to ten students. Two days are in the range of eleven to fifteen students. Three days are in the range of sixteen to twenty students. There is no bar given for the range of twenty-one to twenty-five students.”]

Help student fill in the appropriate value for the third bar. See the following histogram for an example.



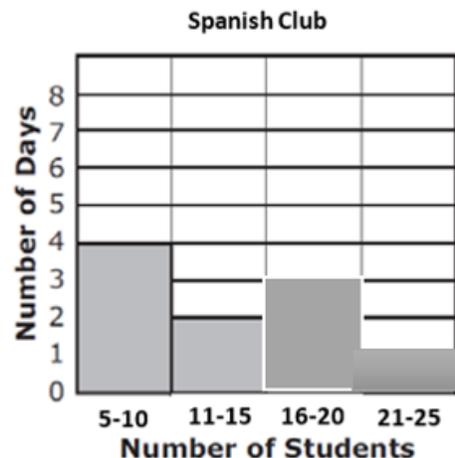
The range for the next bar is 21 to 25 students. Use the list of data values to complete the histogram.

(The student may communicate answers in whatever modality is most common for them. They may point, move the pointer themselves, eye-gaze etc.)

**After the student completes their work:** Use this rubric to score the student’s response.

Score	Description
1	The student provided the correct.
0	The student did not provide the correct answer.

Sample Answer



## Student Answer Document

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_