Spring break learning

March 10-14

2025

The Department of Curriculum & Instruction

Eighth Grade Standards-Aligned Tasks

Hello Students,

This resource packet includes multiple tasks that you can work on during Spring Break. Each task can be in any order.

All of these resources are grade-specific and aligned to the Tennessee State Standards for Mathematics.

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| Day 1	
Downloading Songs	
Grade Level Standard(s)	8.F.A.1 Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. (Function notation is not required in 8th grade.) 8.F.A.2 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and another linear function represented by an algebraic expression, determine which function has the greater rate of change.
Caregiver Support Option	Students may not understand how unit rate is connected to the slope of the graph of a proportional relationship. You may ask your students the following questions to help them understand this concept better: • Can you describe the differences and similarities in the graphs? • What is causing the similarities and differences?
Materials Needed	Paper, pencil
Question to Explore	What is a function? How are functions represented?
Student Directions	Examine the date provided in the graph and the table to determine which person had the faster downloading time.

Student Instructional Task:

Downloading Songs

Downloading Songs

TNCore

Marie and Scott each want to download the new album by their favorite artist. They are going to keep track of how fast they can download the album on separate computers.

Marie decides to represent downloading the album with a graph:
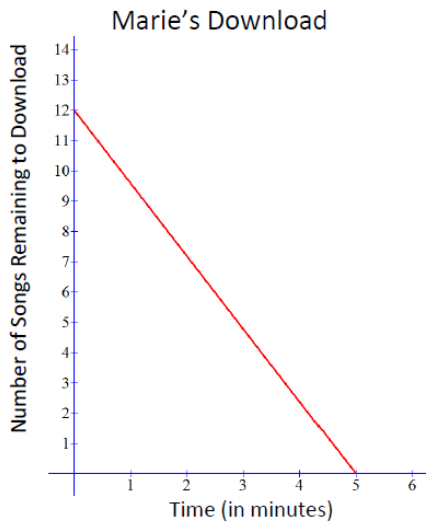
Marie's Download

Scott decides to represent downloading the album with a table:

Time (in minutes)	Songs Downloaded
:45	2
2:15	6
3:00	8
3:45	10

A. Explain what the points (0, 12) and (5, 0) represent on Marie's graph in the context of the problem.

B. Who was able to download the album faster? Explain how you determined your answer.

C. How long would it take each person to download 30 songs? Use equations to help you determine your answer.

D. Graph the relationship between the number of songs each can download and time on the same axes for Marie and Scott. related in terms of slope, explaining what the slope represents.

| Day Two	
Garden Center	
Grade Level Standard(s)	8.F.B.4 Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models and in terms of its graph or a table of values. 8.F.B.5 Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.
Teacher Support	It may be helpful to provide your student with some Styrofoam coffee cups with pronounced lips (similar to the flower pot pictured below) that stack to provide a hands-on investigation of how stacking objects that fit one in to another operate.
Materials Needed	Paper, pencil, stackable coffee cups, if available.
Question to Explore	How can you model and interpret relationships between pairs of numbers? How can mathematical relationships be illustrated and analyzed?
Student Directions	Interpret the data provided in the graph and use that information to answer the questions in the given task.

Student Instructional Task:

Garden Center

TNCore

Garden Center

Elizabeth and Juno stock shelves at the garden center. The garden center receives a shipment of flower pots. Each girl makes a guess as to how many containers of the same size and shape can be stacked on a shelf. The pot that they selected is pictured below. Consider the linear graph they drew to model the heights of the pots that includes two points they found by measuring a number of pots and the height of the stack that they form -- $(2, 4\frac{3}{4})$ and $(5, 7)$.

$\frac{3}{4}$ in.

4 "

Garden Shop

Height of Stack (in.)
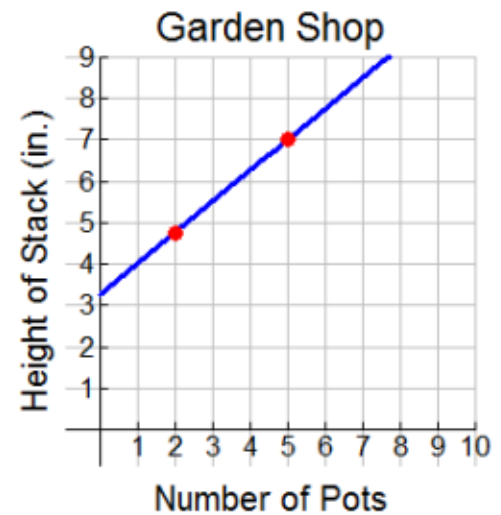
Number of Pots

a. Describe in your own words the functional relationship between the two quantities illustrated by the graph.

b. Write an equation to calculate the height of the stack for any number of pots.

c. If there is 3.5 feet of vertical space on, calculate how many pots can be stored in one stack?

d. How would the graph and the equation change if the pot shape was 10 inches tall with a 1.5 inch lip?

| Day 3	
Growth Pattern	
Grade Level Standard(s)	8.F.A.3 Know and interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. For example, the function A = s^2 giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.
Caregiver Support Option	If available, provide your student with some square color tiles. This may help them visualize the pattern more clearly.
Materials Needed	Paper, pencil, square tiles (if available)
Question to Explore	How do you use functions to model relationships between quantities?
Student Directions	Read the task carefully and use your knowledge of functions to answer the questions in the task.

Student Instructional Task:

Growth Pattern

TNCore

Growth Pattern

Michael and Marissa are studying two growth patterns, Set A and Set B.
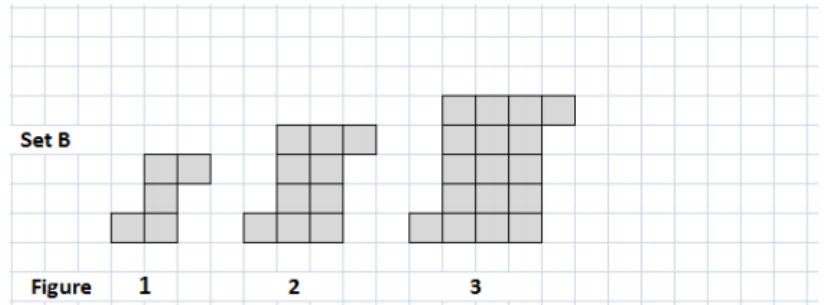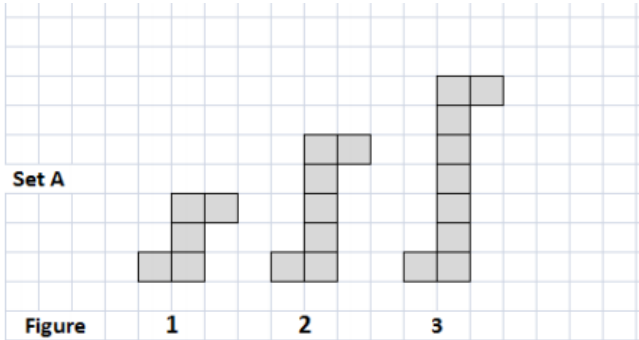
A. Draw the fourth figure in each pattern. For each set, create a table of values showing the number of the figure and how many square tiles are needed to make it.

B. Draw a graph showing the figure number and the number of square tiles needed to make it. If you graph the points on the same set of coordinate axes, use different symbol marks for the ordered pairs in Set A and in Set B.

C. Describe the patterns you see.

D. Can each set of figures be described using a linear equation? If so, write the linear equation. If not, explain why the pattern is not linear.