Packet 4: Patterns and Linear Functions 2

Dear Parents/Guardians,

Students continue the work from Packet 3 of informally exploring concepts integral to the study of linear function—such as slope of a line and vertical intercept—in the contexts of geometric patterns, time-distance relationships, and investigating stacking cups. Students are expected to create and interpret multiple representations for each context, such as pictures, words, tables of numbers, graphs, and algebraic equations.

Slope of a Line

Informally*, the slope of a line helps students describe the steepness of a line. Students will describe the slopes of lines using words such as flat, steep, and parallel.







The orange line is parallel with black line.



than the black line.

*Formal instruction for linear functions begins in Packet 7.

Interpreting Graphs

In Lesson 4.2, students will compare data sets involving distance-time problems, graphing the data sets, and interpreting these results.



Both girls reach the park (90 m), but Daisy's trend line shows her arriving sooner than Ellie.

In this context, the two girls meet where the two trend lines intersect. This means they are at the same place at the same time.

Though Ellie starts closer to the park, Daisy's trend line shows her moving at a greater rate of speed, as indicated by the steeper slope.

Rate of Change

For the distance-time graphs, the rate of change is the change in distance (in meters) per second.

Picture #	1	2	3
Ellie's Distance from School (in meters)	36	42	48
Elapsed Time (in seconds)	0	6	12

Change in Distance (in meters)	Elapsed Time (in seconds)	$ \begin{array}{c} \textbf{Rate of Change} \\ \left(\frac{\text{meters}}{\text{second}} \right) \end{array} $
48 - 42 = 6	12-6 = 6	$\frac{6m}{6s} = \frac{1m}{1s}$

This shows the rate of change from picture 2 to 3.



By the end of the packet, your student should know...

How to describe geometric patterns numerically, symbolically, graphically, and verbally. Lesson 4.1

Interpret distance-time graphs and find the rates of change of each graph. Lesson 4.2

Use numbers, graphs, symbols, and words to represent and interpret data. Lessons 4.2 and 4.3

Additional Resources

Resource Guide (RG) Part 1, pages 45-48