



INTERPRETING A DISTANCE-TIME GRAPH ACTIVITY



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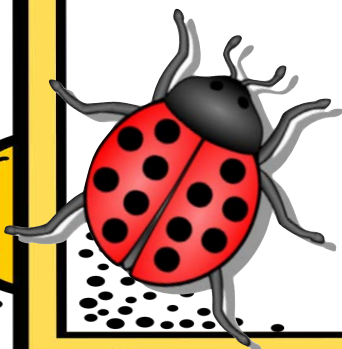
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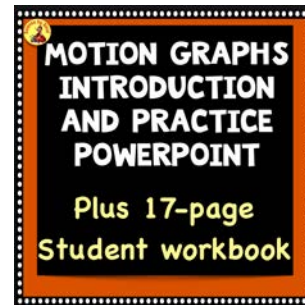


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How I Teach My Unit on Motion and Speed

I start out showing a video of a cheetah running and we discuss how we know that the cheetah is moving. Students usually arrive at the idea of a reference point pretty quickly. Then we talk about the adaptations on the cheetah's body to help it have speed. We talk about how the paws have good traction, with the claws and the strong pads, which leads us into later discussions of friction.

Then I give them the workbook from the Motion Graphs Introduction and Practice PowerPoint. We will use it for several classes as we work through the unit. I show them the first six slides which introduces motion, reference point and the definition of speed. I briefly introduce the idea of a distance time graph.



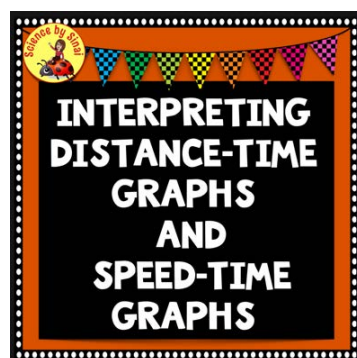
For the next class, we go outside and do the Zombie Finding Speed Activity which is so much fun! Students solve for their own speed many times so they get used to the formula. That activity also introduces the concept of average speed.



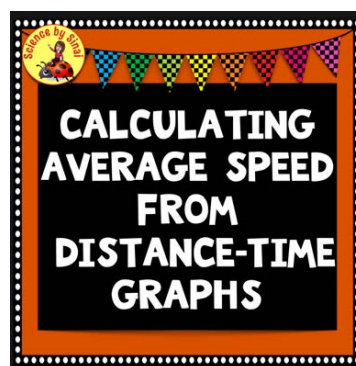
I show them the next few slides, on the ppt, to introduce distance-time graphs and we do practice problems. I assign the reading passage for them to get more depth since I don't have a good textbook on this topic.



We then go into a full study of how to read distance-time graphs using my Interpreting Distance-Time Graphs and Speed-Time Graphs.

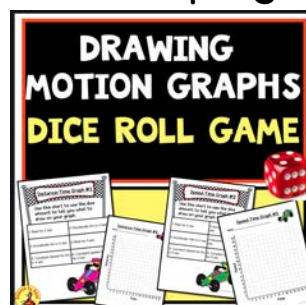


Before moving on to speed graphs, we work on figuring out the average speed using distance-time graphs. We use the practice slides from the PowerPoint along with my activity called Calculating Average Speed From Distance Time Graphs.



I introduce the speed-time graphs with pages from the ppt workbook and the activity above to practice.

Then I lighten it up by having students play the dice roll game and the matching card game.



Finally, I have them draw their own slopes by interpreting the stories at the end of the Interpreting Distance-Time Graphs and Speed-Time Graphs activity. I've also had students write their own stories for their classmates to interpret and draw.

Teacher Notes

This unit includes the important skill of interpreting distance-time graphs and speed-time graphs plus being able to create graphs based on descriptive data.

You may want to cover how forces are either balanced or unbalanced and that causes a change or no change in motion. A discussion of acceleration and deceleration is also important along with how to interpret the difference slopes on the graphs.

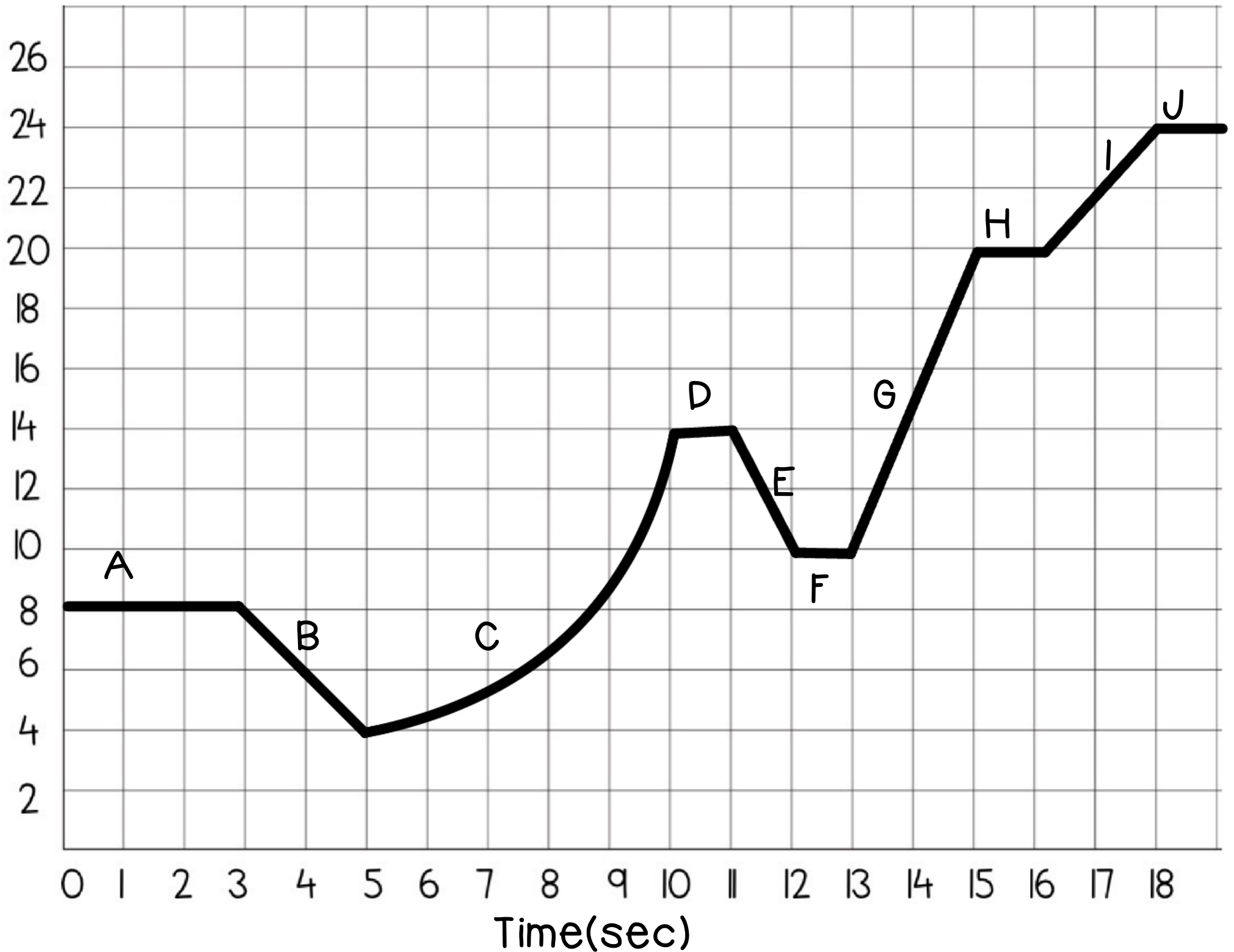
On a distance-time graph a straight line is interpreted as being at REST. A diagonal straight line means CONSTANT SPEED
On a distance-time graph a curved upwards line means ACCELERATION and a line that returns down to the baseline means RETURNING BACK to the original starting point(0 line on the graph).

For this activity, each individual slope is labeled with a capital letter and the students interpret them and write them on the chart on the following slide. I find it helpful to do the first segment together to model the activity. There is an answer slide for your reference.

Distance-Time Graph



Distance(m)





Distance-Time Graph

Action

How much time passed?

A.	Rest	3 sec
B.		
C.		
D.		
E.		
F.		
G.		
H.		
I.		
J.		



Distance-Time Graph

Answers

Action

How much time passed?

A.	Rest	3 sec
B.	Return back from 8.0 m to 4.0 m	2 sec
C.	Acceleration from 4.0 m to 14.0 m	5 sec
D.	Rest	1 sec
E.	Return back from 14.0 m to 10.0 m	1 sec
F.	Rest	1 sec
G.	Acceleration from 10.0 m to 20.0 m	2 sec
H.	Rest	1 sec
I.	Acceleration from 20.0 m to 24.0 m	2 sec
J.	Rest	1 sec

**INTERPRETING
DISTANCE-TIME
GRAPHS
AND
SPEED-TIME
GRAPHS**

**CALCULATING
AVERAGE SPEED
FROM
DISTANCE-TIME
GRAPHS**

**Halloween
INTERPRETING
DISTANCE-TIME
GRAPHS
AND
SPEED-TIME
GRAPHS**

**HALLOWEEN
CALCULATING
AVERAGE SPEED
FROM
DISTANCE-TIME
GRAPHS**

Each of these products has completely different graphs. You can reinforce the concept throughout the year, or you may want to review for testing.

**Christmas
INTERPRETING
DISTANCE-TIME
GRAPHS
AND
SPEED-TIME
GRAPHS**

**CHRISTMAS
CALCULATING
AVERAGE SPEED
FROM
DISTANCE-TIME
GRAPHS**

**Earth Day
INTERPRETING
DISTANCE-TIME
GRAPHS
AND
SPEED-TIME
GRAPHS**

**EARTH DAY
CALCULATING
AVERAGE SPEED
FROM
DISTANCE-TIME
GRAPHS**

For more details, check out my blog post called:
How to Interpret Distance-Time and Speed-Time
Graphs

Science by Sinai!

**ENTIRE UNIT
OF MOTION,
SPEED, AVERAGE SPEED
AND MOTION GRAPHS
BUNDLE OF 12**

INTERPRETING DISTANCE-TIME GRAPHS AND SPEED-TIME GRAPHS

INTERPRETING DISTANCE-TIME GRAPHS AND SPEED-TIME GRAPHS READING PASSAGE AND 4 WORKSHEETS

INTERPRETING DISTANCE-TIME GRAPHS AND SPEED-TIME GRAPHS MATCHING GAME REVIEW CARDS

CALCULATING AVERAGE SPEED FROM DISTANCE-TIME GRAPHS

CHRISTMAS CALCULATING AVERAGE SPEED FROM DISTANCE-TIME GRAPHS

Earth Day INTERPRETING DISTANCE-TIME GRAPHS AND SPEED-TIME GRAPHS

DRAWING MOTION GRAPHS DICE ROLL GAME

CALCULATING AVERAGE SPEED FROM DISTANCE-TIME GRAPHS FREE!

Halloween INTERPRETING DISTANCE-TIME GRAPHS AND SPEED-TIME GRAPHS

Christmas INTERPRETING DISTANCE-TIME GRAPHS AND SPEED-TIME GRAPHS

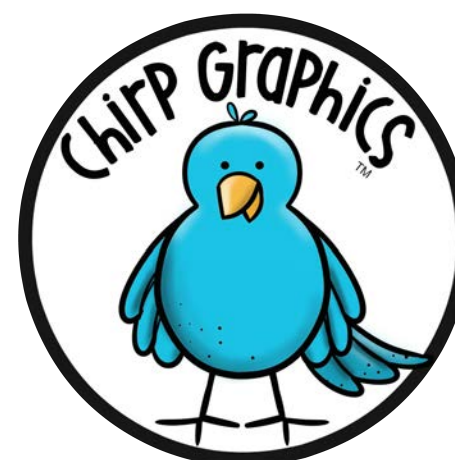
EARTH DAY CALCULATING AVERAGE SPEED FROM DISTANCE-TIME GRAPHS

MOTION GRAPHS INTRODUCTION AND PRACTICE POWERPOINT Plus 17-page Student workbook



Credits

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