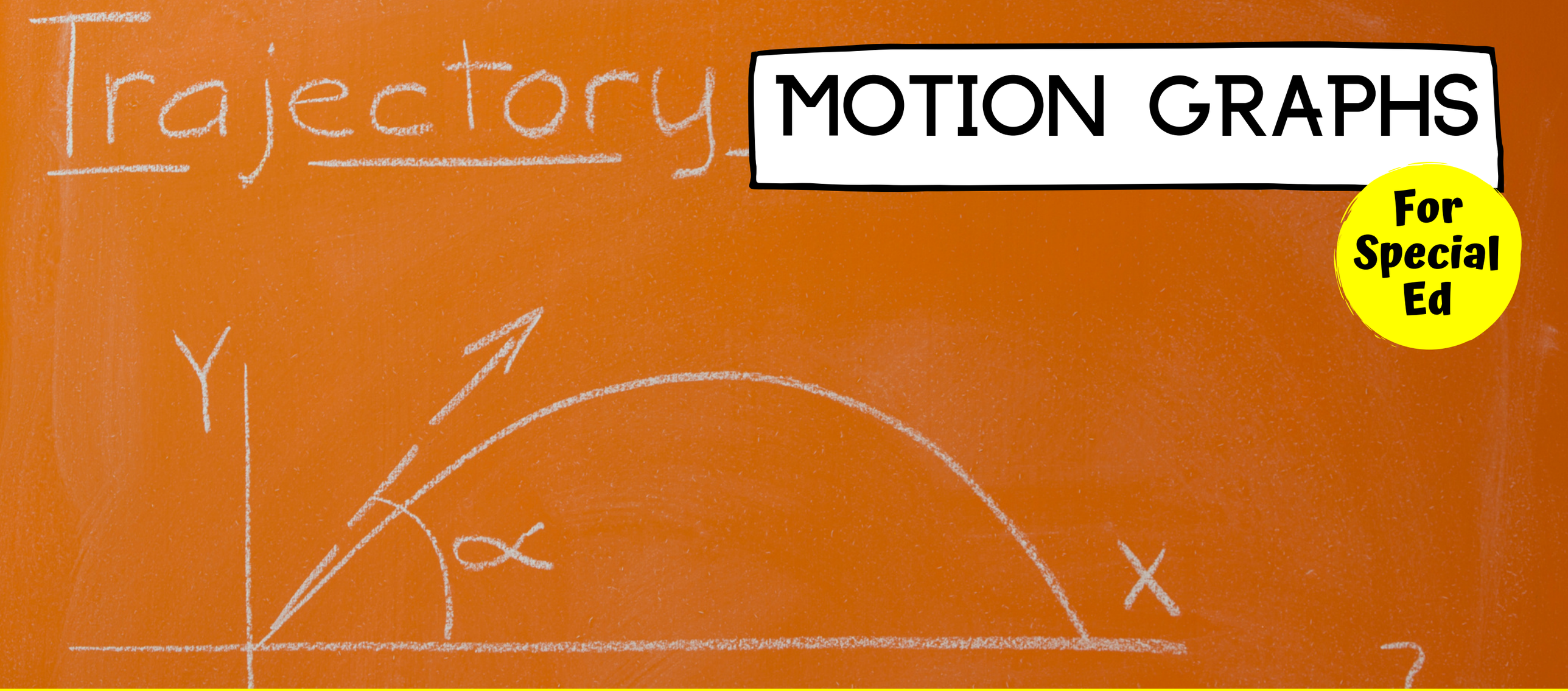


MOTION GRAPHS

For Special Ed

ALSO INCLUDES GOOGLE SLIDES

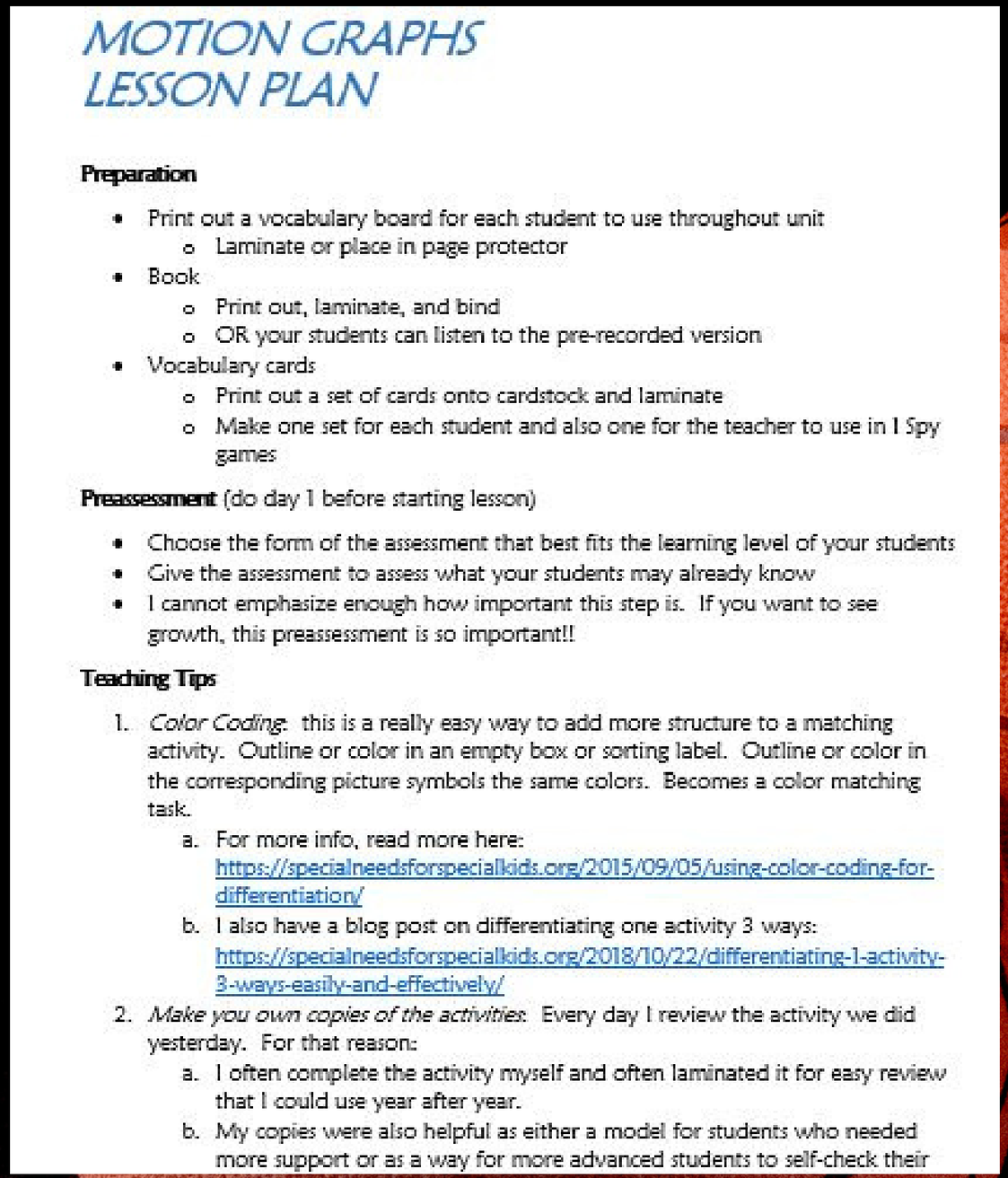
This unit was created with this guy in mind. He has autism and an intellectual disability. He is a non-reader and smell is his favorite sense. With some support he is able to do this unit, and enjoys the challenge. He is my tester!!

Table of Contents

In separate files you will find:

- lesson plans
- Voice recorded PowerPoint
- Directions and links to digital activities

This unit contains over 150 pages of material. But, don't worry!! I have included a 14 day lesson plan to help you make the most of everything packed in this unit.



MOTION GRAPHS LESSON PLAN

Preparation

- Print out a vocabulary board for each student to use throughout unit
  - Laminate or place in page protector
- Book
  - Print out, laminate, and bind
  - OR your students can listen to the pre-recorded version
- Vocabulary cards
  - Print out a set of cards onto cardstock and laminate
  - Make one set for each student and also one for the teacher to use in I Spy games

Preassessment (do day 1 before starting lesson)

- Choose the form of the assessment that best fits the learning level of your students
- Give the assessment to assess what your students may already know
- I cannot emphasize enough how important this step is. If you want to see growth, this preassessment is so important!!

Teaching Tips

1. *Color Coding*: this is a really easy way to add more structure to a matching activity. Outline or color in an empty box or sorting label. Outline or color in the corresponding picture symbols the same colors. Becomes a color matching task.
   a. For more info, read more here: https://specialneedsforspecialkids.org/2015/09/05/using-color-coding-for-differentiation/
   b. I also have a blog post on differentiating one activity 3 ways: https://specialneedsforspecialkids.org/2018/10/22/differentiating-1-activity-3-ways-easily-and-effectively/
2. *Make you own copies of the activities*: Every day I review the activity we did yesterday. For that reason:
   a. I often complete the activity myself and often laminated it for easy review that I could use year after year.
   b. My copies were also helpful as either a model for students who needed more support or as a way for more advanced students to self-check their

The lesson plans contain:

Overall tips for teaching students with significant needs

Quick Look

Day	Activity	Day	Activity
1	• Book • Vocab cards activity • Circle map	8	• Book • Vocab cards activity • Projectile motion graphs
2	• Book • Vocab cards activity • Labeling motion graphs	9	• Book • Vocab cards activity • Projectile motion graphs
3	• Book • Vocab cards activity • Labeling motion graphs	10	• Book • Vocab cards cut and paste • Sudoku puzzle
4	• Book • Vocab cards activity • Labeling motion graphs	11	• Book • Vocab cards cut and paste • Word search
5	• Book • Vocab cards activity • Reading motion graphs	12	• Book • Vocab cards activity • Close worksheet
6	• Book • Vocab cards activity • Reading motion graphs	13	• Book • Vocab cards activity • Close worksheet
7	• Book • Vocab cards activity • Reading motion graphs	14	• Assessment

The lesson plans contain:

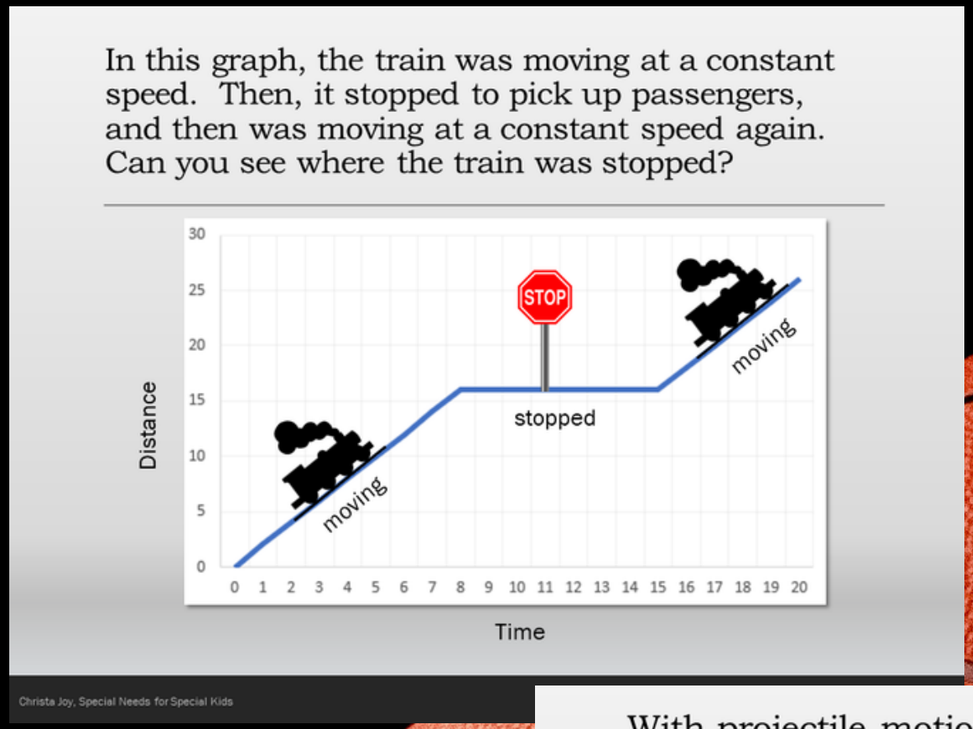
A quick look at what you will do each day

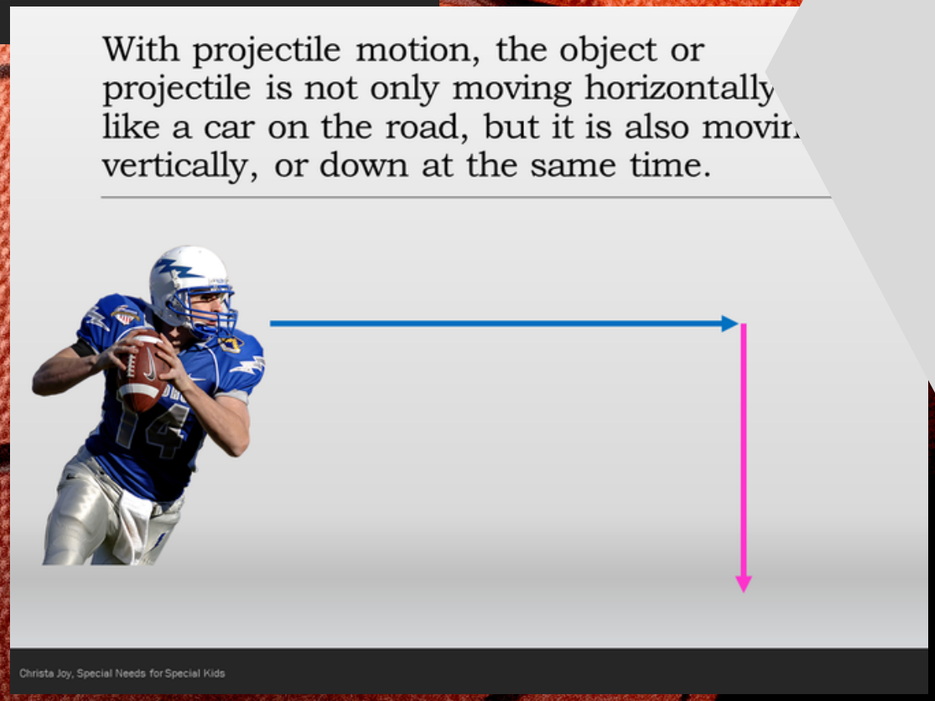
Day 8

Activity	Notes	Materials
Read or listen to a recording of the book (10 minutes)	• Read through the story, asking lots of questions • Continue to make connections between book and vocabulary board	• Book • Vocabulary board
Vocabulary cards Puzzle Game (10 minutes)	• Give each student a pile of pieces • Have them reassemble the pieces into the correct symbols o They may have to ask each other if someone else has the second half to a piece they have. Great for increasing communication and sharing.	• Vocabulary cards (set where each card is cut in half)
Reading graphs review (5 minutes)	• Review the worksheet completed yesterday	• Worksheet completed yesterday
Projectile motion graphs (10 minutes)	• Do the first two graphs • Add color coding if needed (highlight correct answer on graph or used dashed lines similar to in the book) • Students complete the worksheet • Make connections to the book as necessary	• Worksheet • pencils
Sharing (10 minutes)	• Each student shares their finished worksheet with the group using the communication method of their choice	• Completed worksheets • Communication devices

The lesson plans contain:

Detailed instructions on how that day's lesson should run





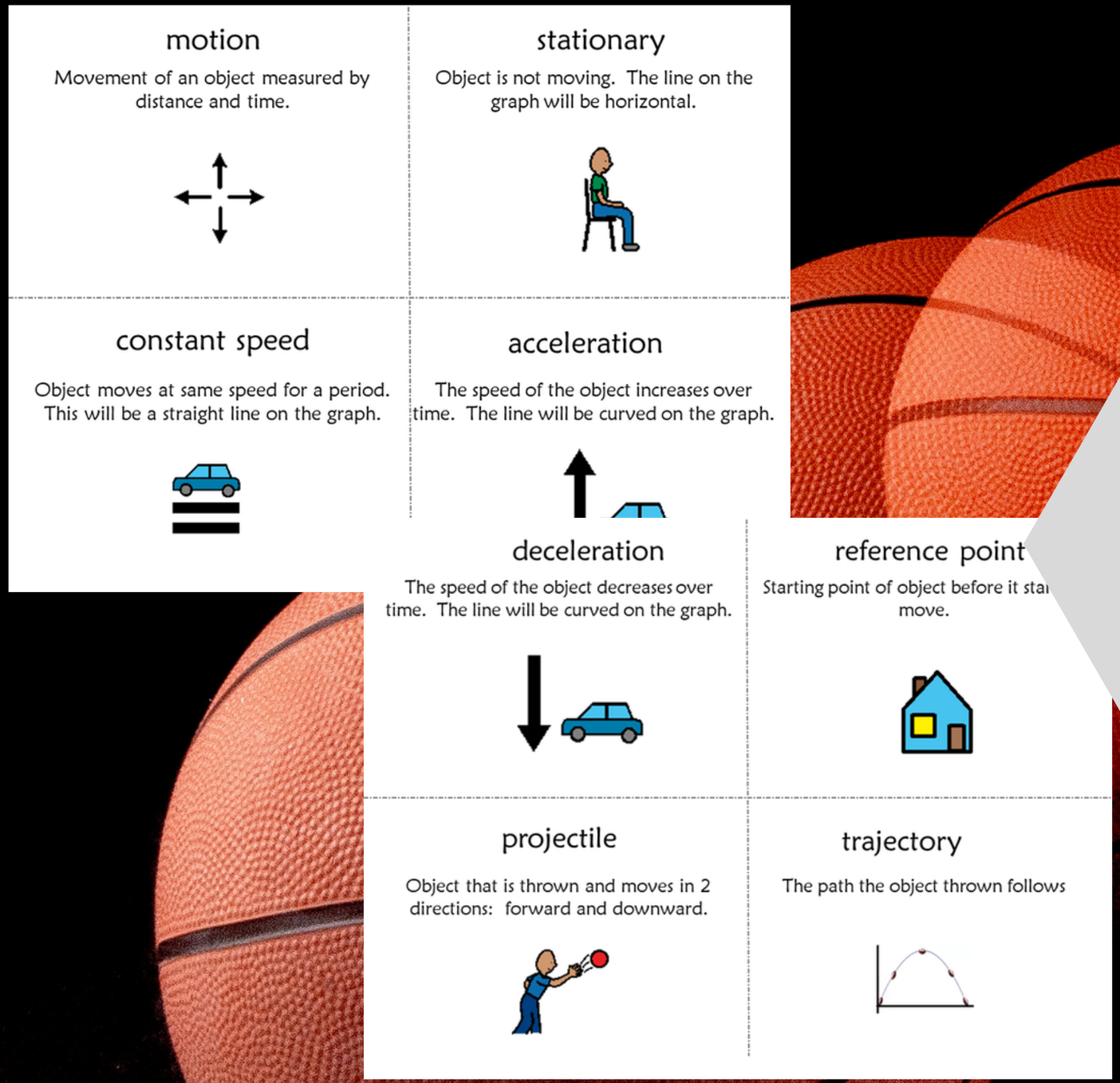
This unit contains a book that is 39 pages and talks all about how objects move and how to graph that movement.

It comes in a pdf version as well as a voice recorded powerpoint (so you don't have to print it out.)

This unit comes with a vocabulary board.

Vocabulary boards are great for ALL students to assist with participation and engagement in group discussions.

Tips on how to use in the unit!!



This unit comes with 12 vocabulary cards.

Every day students will do a group activity using these cards to get more familiar with words that are likely new to them.

motion

Movement of an object measured by distance and time.

stationary

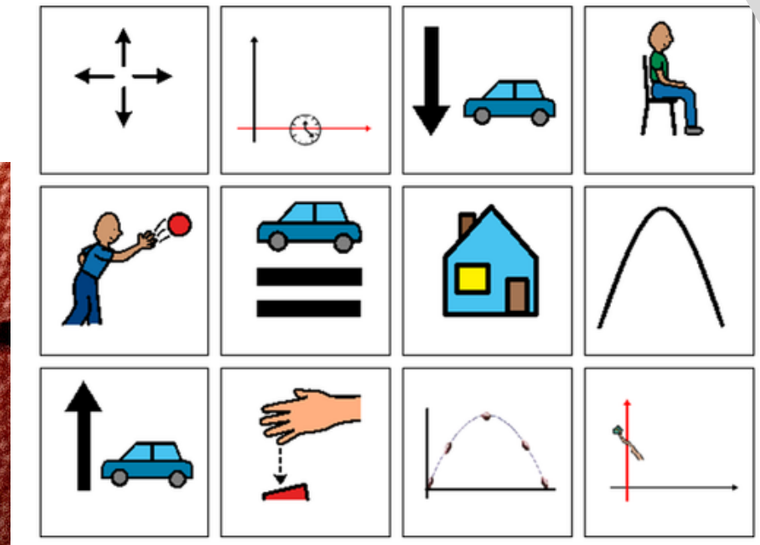
Object is not moving. The line on the graph will be horizontal.

constant speed

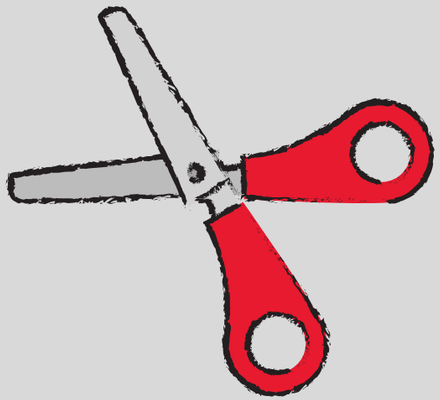
Object moves at same speed for a period. This will be a straight line on the graph.

acceleration

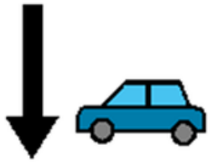
The speed of the object increases over time. The line will be curved on the graph.



Students will also test their knowledge of these new words and symbols with a cut and paste activity on days 10&11.



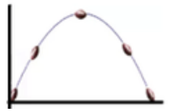
deceleration



reference point

projectile

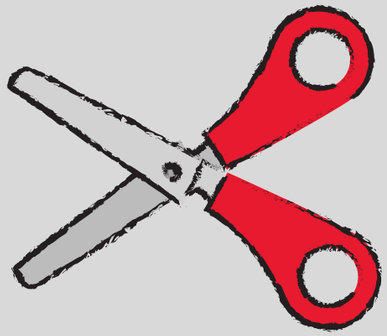
trajectory

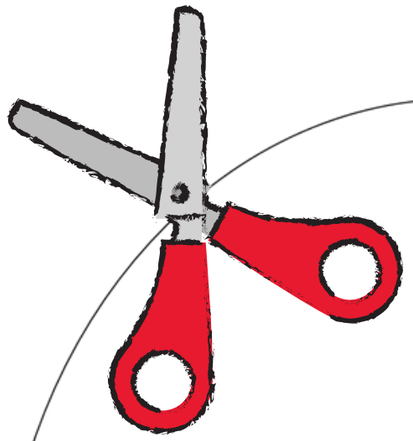


The curved shape of the graph all projectiles make.	Object moves at same speed for a period. This will be a straight line on the graph.
Movement of an object measured by distance and time.	Measures distance object travels in a motion graph. It is along side of graph.
Measures time object travels in a motion graph. It is along the bottom of graph.	The speed of the object increases over time. The line will be curved on the graph.

You have 2 choices:

1. Students match the picture to the definition (easier).
2. Students match the definition to the picture (harder).





Errorless version

Place the pictures in the circle map on previous page about motion graphs.

2 axes	time	distance	constant speed	stationary
accelerate	reference point	projectile	gravity	trajectory

Errorless

motion graphs

Place the pictures in the circle map on previous page ONLY IF you think it relates to motion graphs.

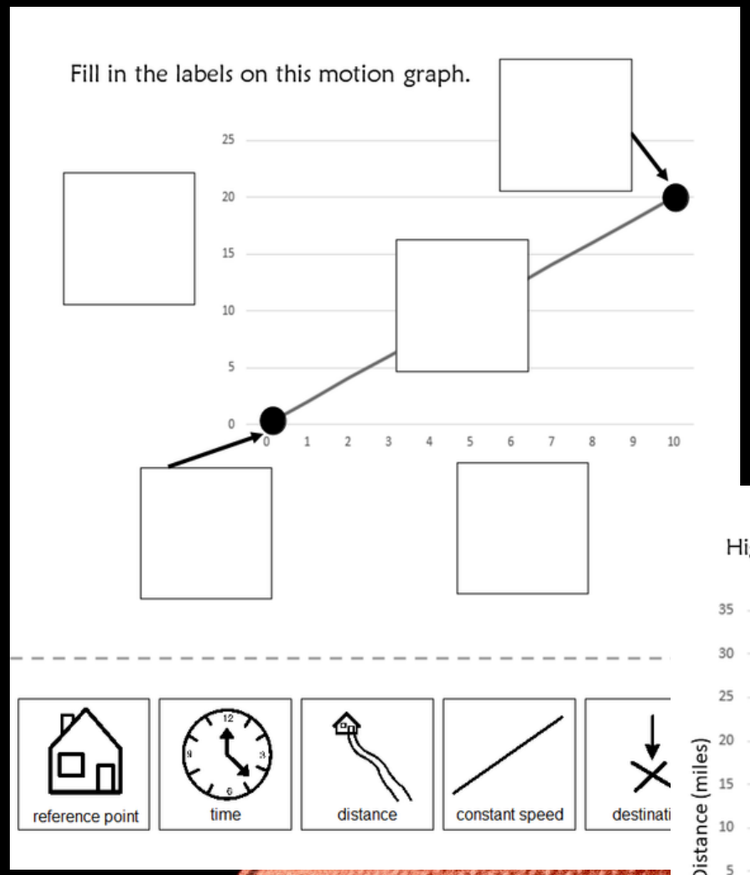
2 axes	time	distance	constant speed	spin
accelerate	dots	weight	gravity	trajectory
length	reference point	projectile	volume	stationary

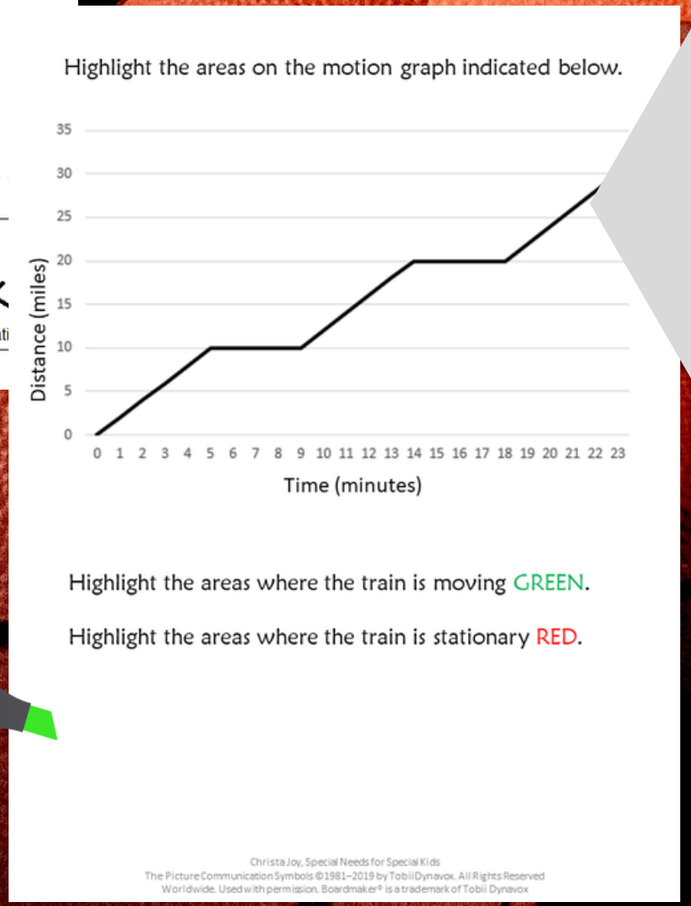
harder

There is a circle map that reviews main facts about motion graphs.

This circle map is a great way for students to see a the concept at a glance. There are 2 versions:

- One is errorless
- One has wrong answers mixed in students will have to set aside

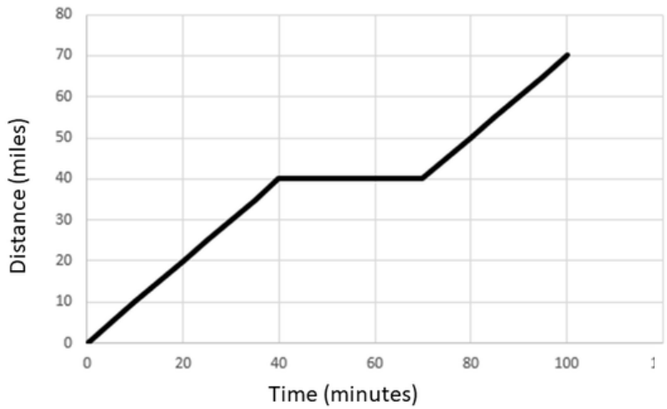




There are 6 worksheets where students practice labeling different parts of motion graphs.

Suggestions for differentiation are included.

Answer the questions below about this motion graph.

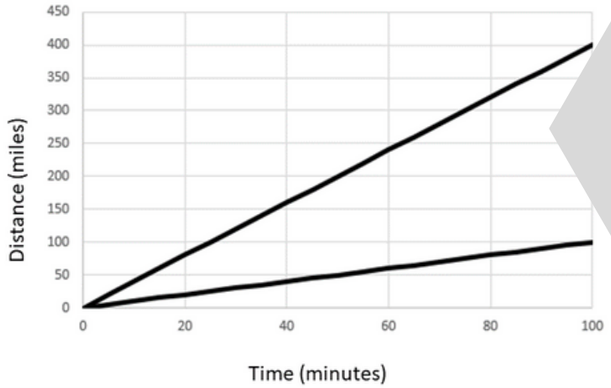


How is the train moving? (circle all that apply)

How far did the train travel? _____ miles

How long did the train travel (including stationary stops)? _____ minutes

Answer the questions below about a train and a person traveling on this motion graph.



Highlight the train's path yellow.
Highlight the car's path green.

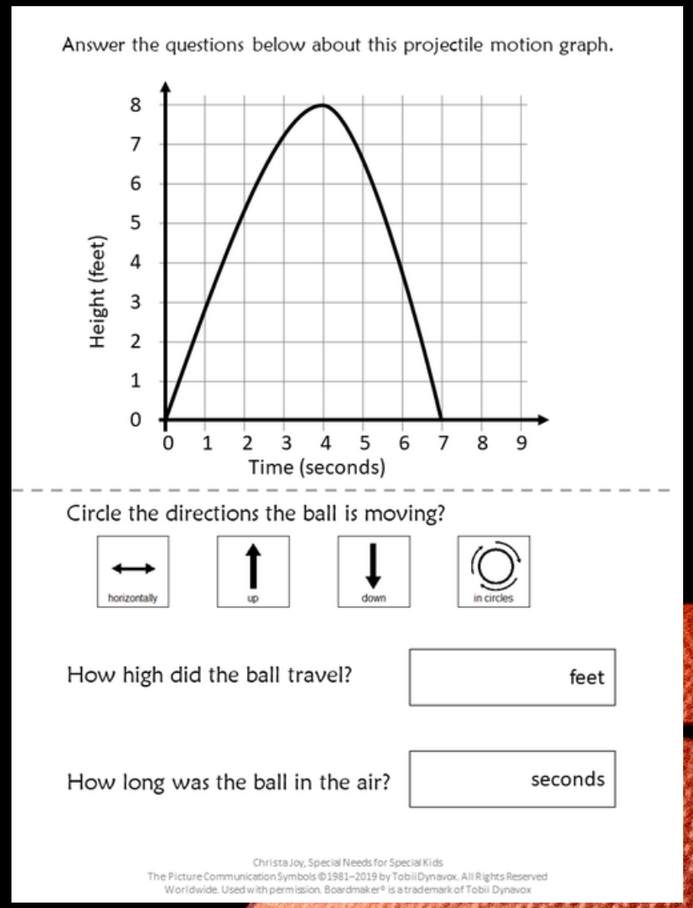
How far did the train travel? _____ miles

How long did the train travel? _____ minutes

How far did the car travel? _____ miles

How long did the car travel? _____ minutes

There are 6 worksheets where students practice actually reading and understanding motion graphs. Suggestions for differentiation are included.

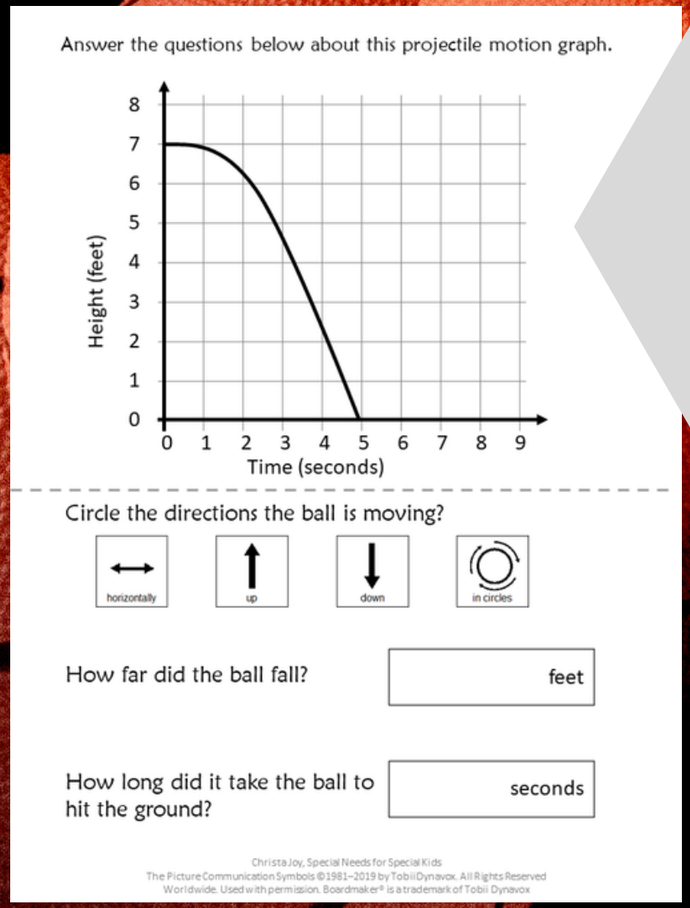

Answer the questions below about this projectile motion graph.

Circle the directions the ball is moving?

horizontally up down in circles

How high did the ball travel? feet

How long was the ball in the air? seconds


Answer the questions below about this projectile motion graph.

Circle the directions the ball is moving?

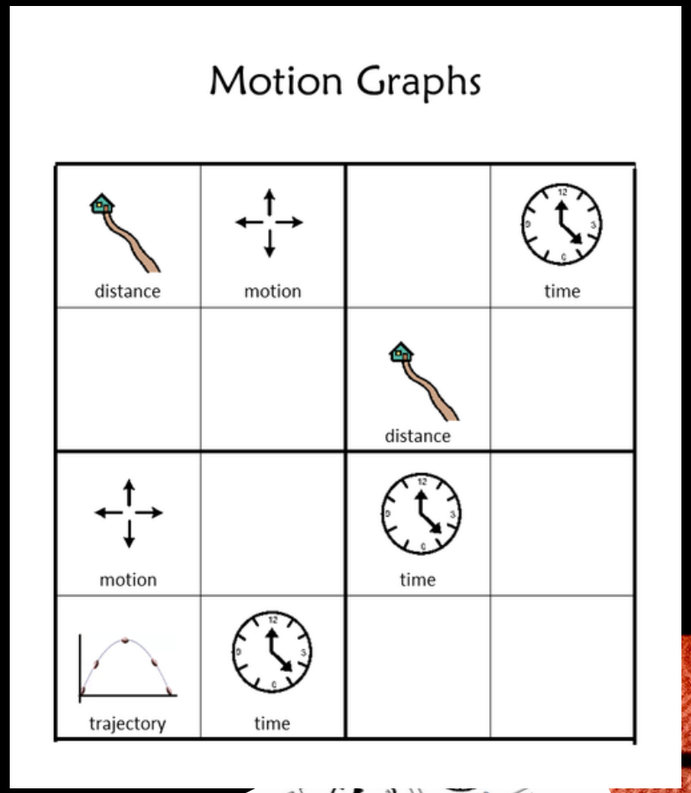
horizontally up down in circles

How far did the ball fall? feet

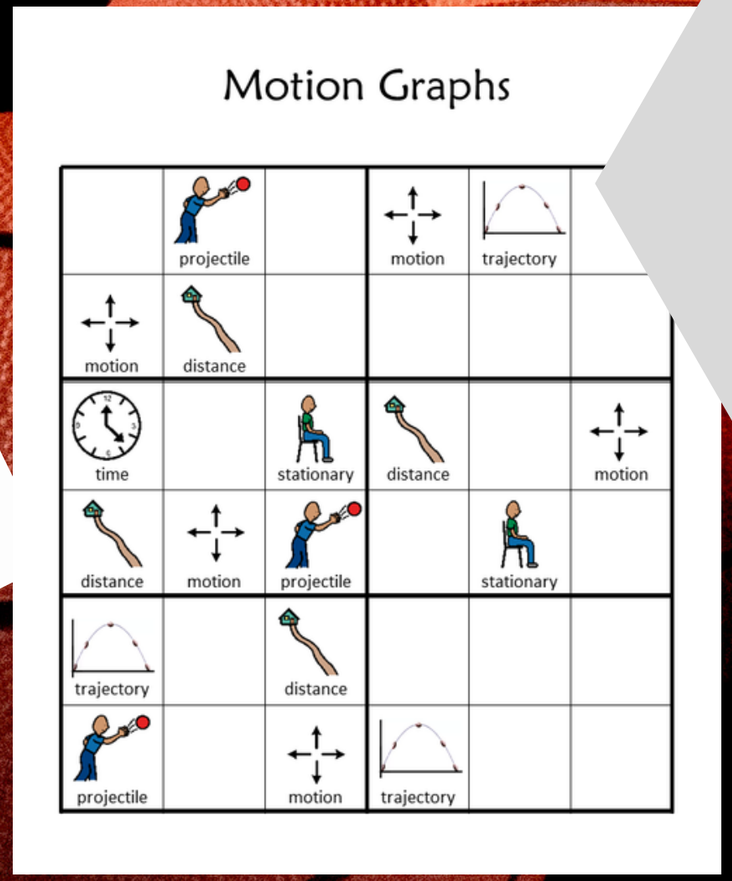
How long did it take the ball to hit the ground? seconds

There are 4 worksheets where students practice reading graphs showing projectile motion.

Suggestions for differentiation are included.



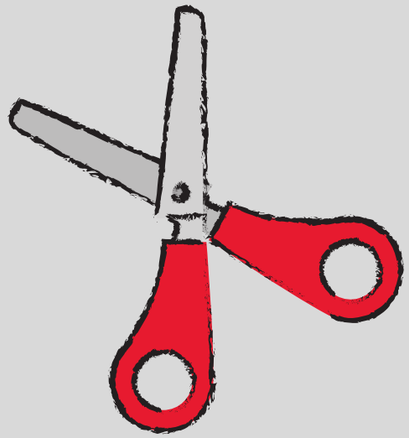
easy

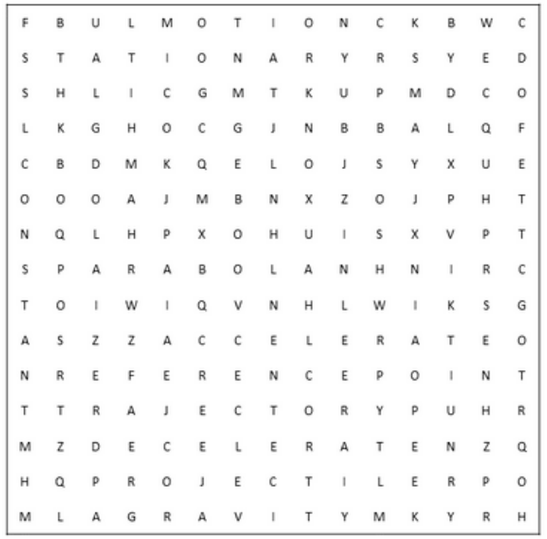


hard

There is a Sudoku puzzle in this unit as well. This is a great way to work with the new vocabulary!!

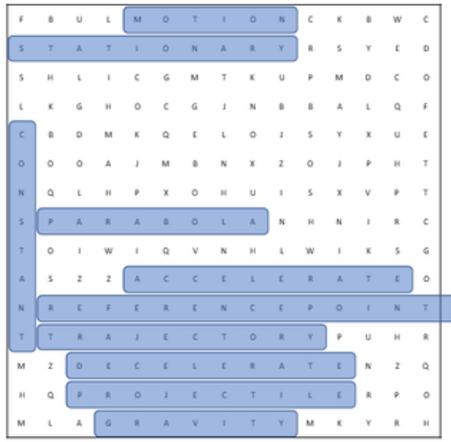
There are 2 versions plus answer keys.





F	B	U	L	M	O	T	I	O	N	C	K	B	W	C
S	T	A	T	I	O	N	A	R	Y	R	S	Y	E	D
S	H	L	I	C	G	M	T	K	U	P	M	D	C	O
L	K	G	H	O	C	G	J	N	B	B	A	L	Q	F
C	B	D	M	K	Q	E	L	O	J	S	Y	X	U	E
O	O	O	A	J	M	B	N	X	Z	O	J	P	H	T
N	Q	L	H	P	X	O	H	U	I	S	X	V	P	T
S	P	A	R	A	B	O	L	A	N	H	N	I	R	C
T	O	I	W	I	Q	V	N	H	L	W	I	K	S	G
A	S	Z	Z	A	C	C	E	L	E	R	A	T	E	O
N	R	E	F	E	R	E	N	C	E	P	O	I	N	T
T	T	R	A	J	E	C	T	O	R	Y	P	U	H	R
M	Z	D	E	C	E	L	E	R	A	T	E	N	Z	Q
H	Q	P	R	O	J	E	C	T	I	L	E	R	P	O
M	L	A	G	R	A	V	I	T	Y	M	K	Y	R	H

reference point	trajectory	motion	accelerate
projectile	parabola	decelerate	constant
stationary	gravity		



F	B	U	L	M	O	T	I	O	N	C	K	B	W	C
S	T	A	T	I	O	N	A	R	Y	R	S	Y	E	D
S	H	L	I	C	G	M	T	K	U	P	M	D	C	O
L	K	G	H	O	C	G	J	N	B	B	A	L	Q	F
C	B	D	M	K	Q	E	L	O	J	S	Y	X	U	E
O	O	O	A	J	M	B	N	X	Z	O	J	P	H	T
N	Q	L	H	P	X	O	H	U	I	S	X	V	P	T
S	P	A	R	A	B	O	L	A	N	H	N	I	R	C
T	O	I	W	I	Q	V	N	H	L	W	I	K	S	G
A	S	Z	Z	A	C	C	E	L	E	R	A	T	E	O
N	R	E	F	E	R	E	N	C	E	P	O	I	N	T
T	T	R	A	J	E	C	T	O	R	Y	P	U	H	R
M	Z	D	E	C	E	L	E	R	A	T	E	N	Z	Q
H	Q	P	R	O	J	E	C	T	I	L	E	R	P	O
M	L	A	G	R	A	V	I	T	Y	M	K	Y	R	H

reference point	trajectory	motion	accelerate
projectile	parabola	decelerate	constant
stationary	gravity		

There is also a word search to work with vocabulary. If your students cannot do a word search, have them highlight the circle words on the answer key.

Motion Graphs

1. A motion graph has [ ] axes.
2. [ ] is measured along the bottom or x-axis.
3. The y-axis, along the side, measures [ ] the object travels.
4. If the object is moving at a constant speed, the line will be [ ]
5. A curved line means the object is [ ] or decelerating.

Projectile Motion

1. The path the projectile takes is called the [ ] .
2. All projectiles move in [ ] directions.
3. Gravity pulls the object [ ] .
4. The trajectory is in the shape of a [ ] .
5. You can tell how [ ] an object traveled as well as h
ong it was in the air.

Motion graphs (page 1)

Motion graphs (page 2)

Projectile motion

Close worksheets are a great informal assessment. This unit has several. Two cover the main concepts and one is just on projectile motion.

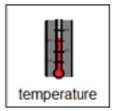
Answer key included.

Version 1

1. What is measured along the x-axis (along bottom) of a motion graph?


time


distance


temperature

1. What is measured along the y-axis (along side) of a motion graph?

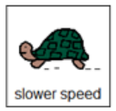

time

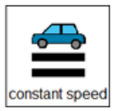

distance


weight

2. A straight line means the object is moving at a:

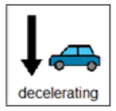

faster speed


slower speed


constant speed

3. If the line is horizontal or flat, what is the object doing?


accelerating

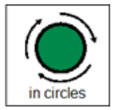

decelerating


stationary

4. A steeper line means the object is going:


faster


slower


in circles

FINALLY the assessment!! There are 3 versions. This version has 10 questions with 3 picture choices for each question.

Answer key included.

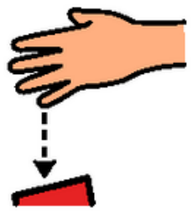
Version 2

Print onto cardstock or mount on index cards. Cut pictures apart and show student answer choices for each question.

Q 7

1 one	2 two	5 five

Q 8

 gravity	 pushing	 weight

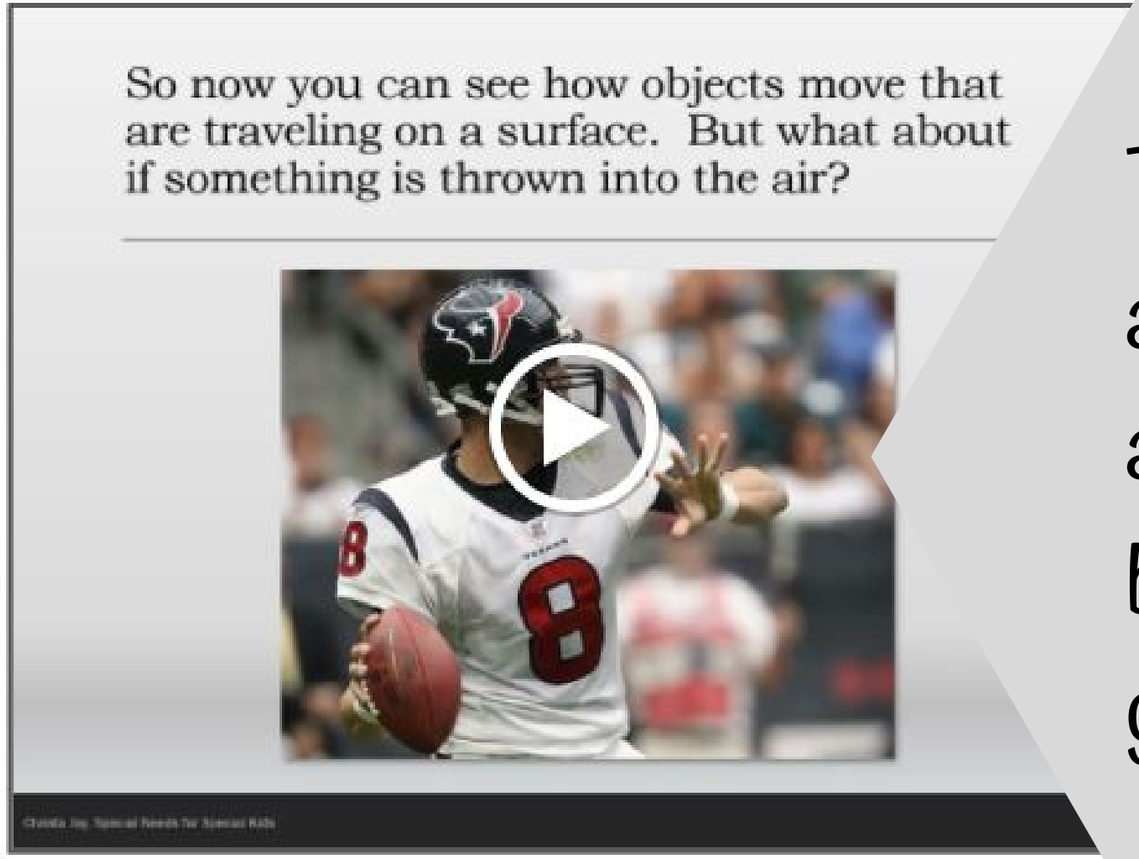
With this version, you cut out the answer choices and glue them on index cards. Ask the student the question, and they point to the correct answer.

Version 3

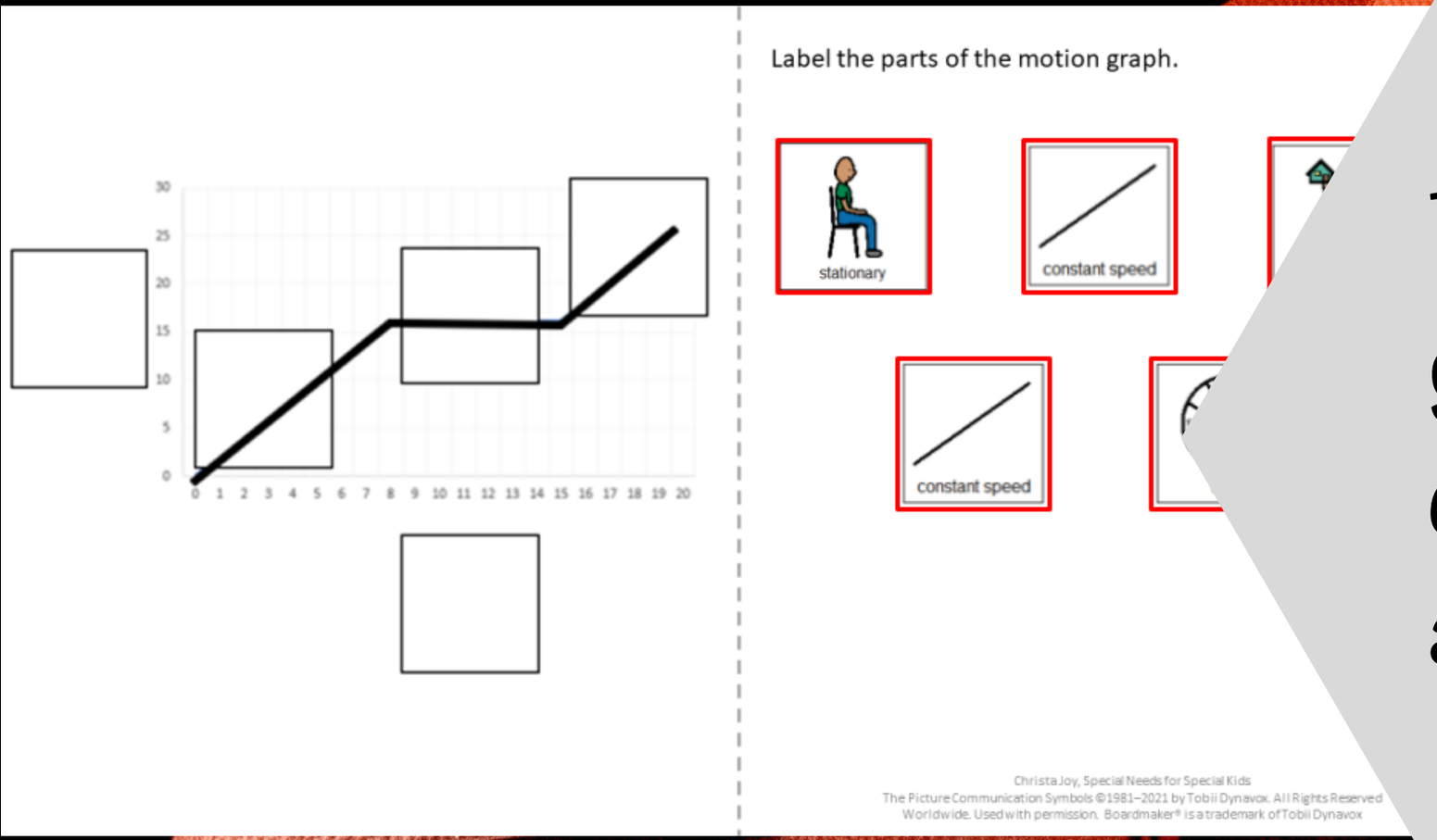
1. What is measured along the x-axis (along bottom) of a motion graph?
   A. Time
   B. Distance
   C. Temperature
2. What is measured along the y-axis (along side) of a motion graph?
   A. Time
   B. Distance
   C. Weight
3. A straight line means the object is moving at a:
   A. Faster speed
   B. Slower speed
   C. Constant speed
4. If the line is horizontal or flat, what is the object doing?
   A. Accelerating
   B. Decelerating
   C. Stationary
5. A steeper line means the object is going:
   A. Faster
   B. Slower
   C. In circles
6. What is the path the object travels called?
   A. Sidewalk
   B. Road
   C. trajectory

This is your traditional multiple choice version. It can also be used as a recording sheet if your students are using the version with index cards.

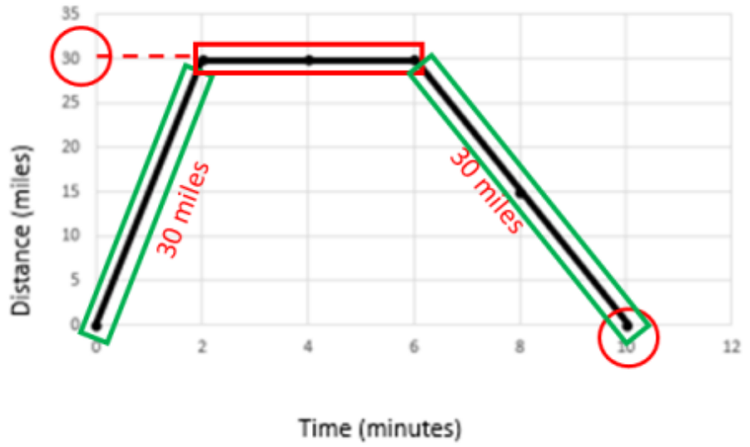
Watch the movie about Motion Graphs



This unit includes digital activities. Part of that is a movie version of the book you can play in a google slide.



There are 2 sets of 27 google slides. Students can click and drag the answers.



Highlight where the train is going a constant speed green.
Highlight where the train is stationary yellow.

How far did the train travel? miles + miles

How long did the train travel (including the time it was stopped)? minutes

Answer the questions about a train and a car on the motion graph.

Highlight the paths.

Match in the answers in the blue boxes.

30

10

30

One set is differentiated with color for students who need more support. Mix and match from both sets to make a perfect set for each student.

I realize there will be some students out there unable to do cutting activities. I have a blog post with ways to complete activities without a pair of scissors!!

Click Here to read more!!

All of the activities (except the book) comes in color and black and white.