2.1 Intro to Functions finished

	Topic: Functions
	<u>EQ:</u> What is the definition of a function and how can I determine if a relationship is a function from a table, graph or real world problem?
	Notes:

Aug 27-3:58 PM

Learning Target 2.1:

I understand the definition of a function, and can identify functions from

- graphs
- tables
- real world situations

Sep 25-9:25 AM

Aug 27-4:01 PM

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What is a relation in math?

*a relationship between variables that change together

*they have an input (independent event)

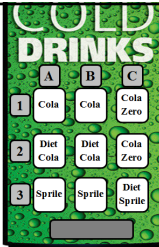*they have an output (dependent event)

Sep 26-9:35 AM

One type of relation is a **Function**

-a function is a relation where there is exactly one output for every input.

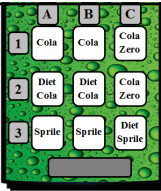Sep 26-9:35 AM

2.1 Intro to Functions finished

Pictured to the right is a vending machine in the school lobby.

Read through each situation below. Assuming you inserted the correct amount of money for each purchase; tell whether you think the vending machine in each situation is:

- "working properly"
- "broken", or
- "other" (for other, write in what you think is happening with the machine).

Aug 27-4:03 PM

Read through each situation below. Assuming you inserted the correct amount of money for each purchase; tell whether you think the vending machine in each situation is:

- "working properly"
- "broken", or
- "other" (for other, write in what you think is happening with the machine).

Situation A

Purchase 1: You press A1 and a bottle of Cola comes out.
Purchase 2: You press B1 and a bottle of Cola comes out.
Purchase 3: You press B2 and a Diet Cola comes out.
Purchase 4: You press C3 and a Diet Sprite comes out.
Purchase 5: You press C3 again and a Diet Sprite comes out.

What do you think?

Situation B

Purchase 1: You press A1 and a bottle of Cola comes out.
Purchase 2: You press A1 and a bottle of Sprite comes out.
Purchase 3: You press C2 and the machine says "Out of Sprite".
Purchase 4: You press B2 and a Diet Cola comes out.
Purchase 5: You press B2 and a Diet Cola as well as a Sprite comes out.

What do you think?

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1) If "pushing a button" is the **input** and "receiving a soda" is the **output**, make an input – output table to describe the relationship between the inputs and outputs for Situation A, Situation B and Situation C.

Situation A		Situation B		Situation C	
INPUT	OUTPUT	INPUT	OUTPUT	INPUT	OUTPUT
A1	C	A1	C		
B1	C	A1	S		
B2	DC	C2	S		
C3	DS	B2 S			

2) How many machines are *functioning* correctly? Which one(s) and why?

3) How many machines are not *functioning* correctly? Which one(s) and why?

4) In terms of input and output, what determines whether a machine is *functioning* correctly or not?

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5)

Functions	Not a Function
INPUT (x) → OUTPUT (y)	INPUT (x) → output (y)

How can you tell when input/output tables (mapping) are functions?

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Functions = From a Table

6)

Functions		Not a Function	
Input x	out y	In x	out y
−1	2	−1	2
0	1	−2	1
2	−5	0	−5
3	2	−2	4

x	y	x	y
−2	4	−4	−2
5	4	0	0
0	1	3	1
2	0	3	2

How can you tell when tables are functions?

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7) Identify the **input** and the **output** in each scenario below.

Functions	Not a Function
Each student at Champlin Park High School is assigned a student id number.	Every day during the school year, Andover High School recognizes student birthdays.
Input: Student	Input: day of The week
Output: Id	Output: Students B-day
Every country has a capital.	A mascot is at every school.
Input: Country	Input: Mascots
Output: Capital	Output: Schools

How can you tell when real-world situations are functions?

Sep 10-7:49 AM

2

2.1 Intro to Functions finished

Functions from a Graph
Vertical Line Test:

*helps us determine if a graphed line is a function

Function or not?

#9 – 12: What is the input and output? Is the relation a function or not?

9) {(4, 2), (0, 5), (3, 3), (–1, 5)}

   input:

   output:

   Is the relation a function?

10) {(3, 5), (–2, 8), (9, –1), (–2, –1)}

   input:

   output:

   Is the relation a function?

11) {(blonde, flute), (brunette, saxophone), (blonde, clarinet)}

   input:

   output:

   Is the relation a function?

12) The number of cars in the parking lot compared to the number of axels.

   input:

   output:

   Is the relation a function?

4) Write a story for each of these graphs.

   a)

   b)

HW: Pg 71 (3ad, 4cd)

   Pg 72 (2, 3, 6, 8, 11, 14, 17, 20)