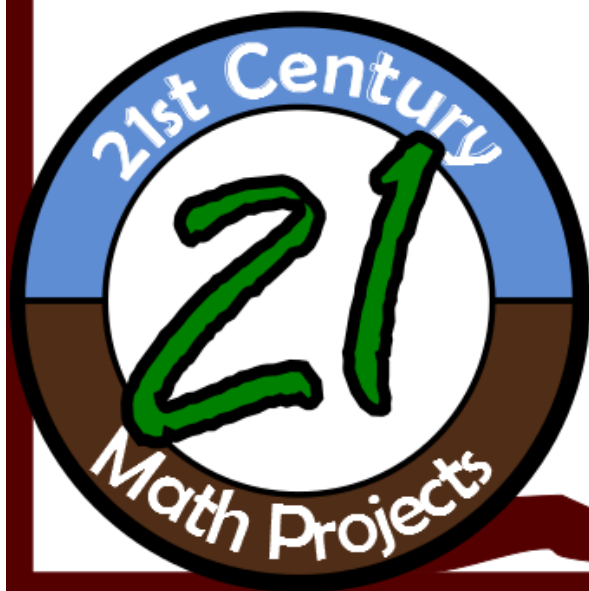
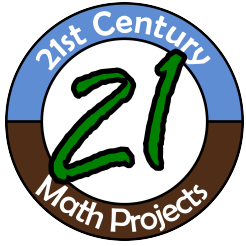


# ZOMBIE APOCALYPSE





# ZOMBIE APOCALYPSE

## INPUT-OUTPUT EDITION

<b>Ideal Unit:</b>	Input-Output Tables & Patterns	<b>Time Range:</b>	2-3 Days	<b>Supplies:</b>	Stopwatch, Pencil & Paper
<b>Topics of Focus:</b>					
<ul style="list-style-type: none"> <li>- Input-Output Tables</li> <li>- Generating Rules for Patterns</li> </ul>					
<b>Driving Question</b>	<i>"Can you survive the zombie apocalypse with the help of input-output tables?"</i>				
<b>Culminating Experience</b>	Surviving a zombie apocalypse				
<b>Common Core Alignment:</b>					
3.OA.9	Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.				
4.OA.C.5	Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way .				
5.OA.B.3	Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.				
<b>Procedures:</b>					
<p>A.) In "Zombie Apocalypse", students (or teams) answer the input-output questions and develop mathematical rules and make predictions. It is within the context of finalizing the report of a famous doctor. This doctor laid a foundation for finding an antidote, but unfortunately became a zombie before finishing. This should take approximately 1 class period. Along the way they will explore the foundation of inverse operations.</p> <p>B.) In "Outbreak", half of your class will turn into zombies while the other half tries to cure them... or else they will become Zombies too.</p> <p>Cut these out individually. Hand a zombie card to half of the class. They will be zombies. Have the non-zombie students (the doctors) go to a central area with a pile of all of the antidote cards. The Zombies must walk around Zombie-like holding their card. They can make Zombie noises. <u>Use a stopwatch</u>. If a doctor cannot find a zombie to give the correct antidote to in 30 seconds, then they will become a zombie. Give them a Zombie card. Cured Zombies become doctors.</p> <p>C.) In "Z-Day", students apply a rule to determine when the Zombie population is controlled.</p>					

D.) In “Report”, students (or teams) will write to the United Nations in which they design an Action Plan, Procedures for an Antidote and Suggestions for future safeguards. The specifics given to students are:

*Please understand that the timetable for completing your research is extremely short. In your report, please include your recommendations in regards to the following issues.*

- i. A Plan of Action in dealing with the current crisis. What world region should aid first be given? What areas can wait? Please provide your detailed opinion along with data to support your decisions.*
- ii. Information about the growth of the virus. Which viruses grow faster and how can it be predicted?*
- iii. How can an antidote be created? What do doctors need to know in order to give the correct dosage?*
- iv. If we survive, what are realistic safety plans can be made to make sure we are more prepared in future zombie outbreaks?*

You can have students work in groups to do this and have each group present to the class. You can have students work individually and hand it in. You decide what works for you and your students.

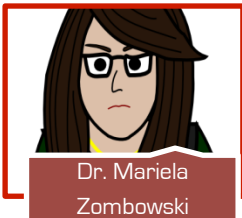
\* Aspects of the project can be completed independently. The entire project does not need to be completed to have a great learning experience, though it is suggested because it will best scaffold the skills and context.

# ZOMBIE APOCALYPSE



Name \_\_\_\_\_ Date \_\_\_\_\_

The end is near. After a Maroon 5 concert, someone who was carrying the Zombie Virus bit guests. These guests lived all around the world. They returned to their homes and transformed into brain-eating Zombies. This has spread the virus and the Zombie population has erupted.



We are sending you the notes of the disease expert Dr. Mariela Zombowski. Yesterday, while buying a sandwich at Panera Bread, she was bitten by a Zombie. We are trying to get information about her transformation and we hope with your help she can be returned to the lab. As human as possible.

Many of her notes are incomplete, but she was working on how to predict the spread of the Zombie Virus. She was making progress on antidotes. We hope you can make sense of it and write a full report within 72 hours.

- United Nations Center for Disease Control

If you are reading this, I've likely become a Zombie. Do not trust that the rules of "Zombieland" will keep you safe. The Zombies have seen this film and know how to take advantage of the rules. They have all new tricks. The only hope is an antidote.

Data has been collected for Zombie population of each world region. I believe that an antidote will be needed before 80% of a population is infected. If a region reaches the threshold, a quarantine to separate the infected from the healthy will be necessary. It will be too dangerous for rescue efforts at this time.

Region	Total Population in Millions (p)	Threshold Rule: Multiply p by $\frac{8}{10}$ or 0.8
Africa	1,020	
Asia	4,250	
Europe	730	
Latin America & Caribbean	580	
Northern America	350	
Oceania	40	



## Zombie Population (in millions) Day-by-Day

Region	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Africa	2	172	342	512			
Asia	5	505	1,005	1,505			
Europe	120	240	360	480			
Latin America & Caribbean	10	110	210	310			
Northern America	20	70	120	170			
Oceania	5	10	15	20			

Predictions... The 80% threshold will be reached in how many days...

Region	Rule	80% Threshold will be reached in...
Africa		
Asia		
Europe		
Latin America & Caribbean		
Northern America		
Oceania		

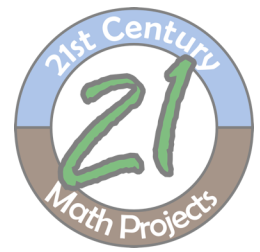
Thoughts for Report...

Where is the most drastic need for antidote resources?

Today is Day 4. If an antidote is not ready for 48 hours, what areas should be quarantined?

# ZOMBIE APOCALYPSE

## INPUT-OUTPUT TABLES EDITION



### Rubric

Standards		Exemplary	Proficient	Developing
4.OA.C.5	generate a number pattern that follows a given rule.			
5.OA.B.3	identify apparent relationships between corresponding terms.			
	form ordered pairs of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane.			
Math Processes		Exemplary	Proficient	Developing
Skills & Mechanics	<i>accurately performs calculations</i>			
	<i>demonstrates fluency with mathematical skills and processes</i>			
Applications	<i>accurately interprets word problems and addresses them with appropriate math skills</i>			
	<i>can articulate the meaning of calculations in the context of the problems.</i>			
Use of Evidence & Analysis	<i>can determine what evidence is appropriate to answer a question</i>			
	<i>utilizes mathematical outcomes to support their conclusions</i>			

Comments: