



Science Learning Packet

Grade 7:

Populations & Resources, Lesson 2

science learning activities for SPS students during the COVID-19 school closure.

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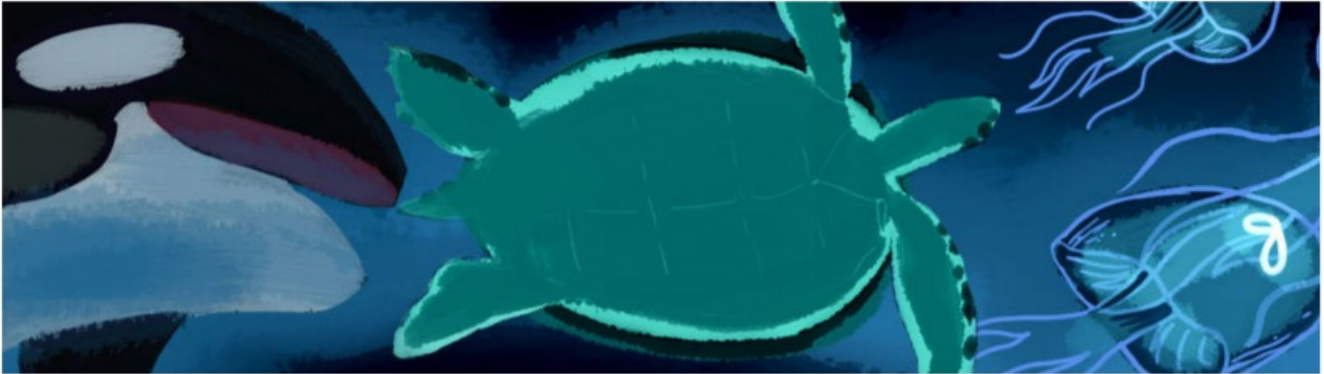
Due to the COVID-19 closure, teachers were asked to provide packets of home activities. This is not intended to take the place of regular classroom instruction but will help supplement student learning and provide opportunities for student learning while they are absent from school. Assignments are not required or graded. Because of the unprecedented nature of this health crisis and the District's swift closure, some home activities may not be accessible.

If you have difficulty accessing the material or have any questions, please contact your student's teacher.



Grade 7 Science Learning Activity
Populations & Resources Unit
Lesson 2 Optional Instructional Materials

AmplifyScience



Populations and Resources:

Stability and Change in Populations

Investigation Packet

Hello Families,

We hope you and your family are well and safe during this time. During this unprecedented out-of-school time, the SPS middle school science team will be offering instructional opportunities for students that align with the district's adopted middle school science instructional materials. **This work is optional and non-graded.**

This investigation packet is the first part in a series of district-aligned lessons about **Populations and Resources**, a 7th grade life science unit developed by AmplifyScience. While Amplify Science lessons are designed to be done in the classroom with peers, there are some activities that students can complete at home. In this packet you will find activities to accompany lessons 1 and 2 of the unit. **Accompanying lesson videos will be aired on SPS TV and posted the SPS webpage under Grade 7**, however this packet can be used with or without the accompanying video.

The videos can be accessed either online or through Seattle's Public television programming on [SPS TV](#) (local channel 26), social media (Facebook and Instagram: @SeattlePublicSchools, Twitter: @SeaPubSchools), and our [SPSTV YouTube channel](#). KOMONews.com will also host on-demand videos under the tab "Lesson Plan" and broadcast on channel KOMO 4.3. These supplemental learning videos feature short segments supporting a variety of subjects and grade levels. All videos will be close captioned on YouTube. For more information regarding the SPS TV broadcast schedule and to find the videos, please visit the following website:

https://www.seattleschools.org/departments/media_operations_center_sps-tv/broadcast_schedule

For students who have access to the internet and the following devices and browsers may wish to log-in to their AmplifyScience account from home are welcome to do so. See below for guidance on which browser

- **Desktops and Laptops** (Windows 7+, Mac OS 10.11+) - *Suggested browsers: Chrome & Safari*
- **Chromebooks** - *Suggested browser: Chrome*
- **iPads that support iOS11.3+** (iPad5+) - *Suggested browser: Safari*

Sincerely,

Seattle Public Schools Science Department



Lesson 2:

A group of scientists has been observing a **population** of meerkats in Botswana. They notice that the size of the population has not changed much between 2000 and 2016.

The population size did not change between 2000 and 2016.

Theo thinks that the population size stayed the same because no new meerkats were born and none died. They were all the same meerkats.



Fabiola thinks that it is not possible that all the same meerkats were in the population for the whole time.

Which person do you most agree with? (check one)

- Theo
- Fabiola

Explain your thinking:

Population Game

You can play this game if you have dice at home! If not, skip this game.

Births and deaths are always happening in a population. How does the number of births and deaths in a population affect its size?

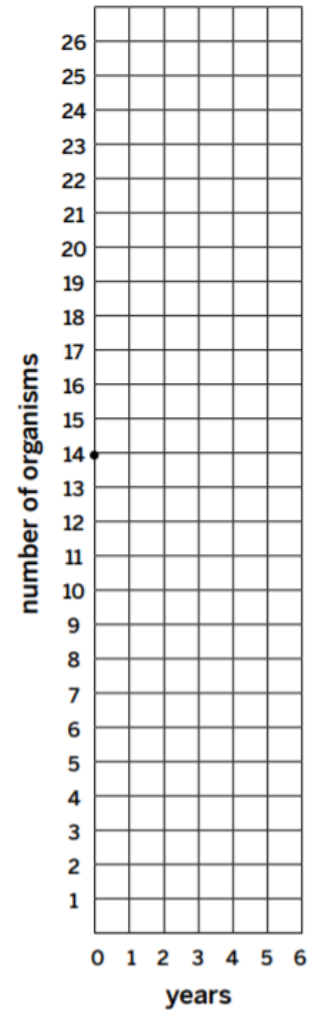
1. Get 14 pieces of rice, dry beans, or cut 14 up 14 small pieces of paper (*small items*) and place in a cup
2. You must assign **life** or **death** to each number on the dice (1-6)
3. Decide what values on the dice will represent a **death**: _____ (must have at least one number here)
4. Decide what values on the dice will represent a **birth**: _____ (must have at least one number here)
5. Roll the dice (2).
6. For every dice that is showing a death number, remove a token from the population pool.
7. For every dice that is showing a birth number, add a token to the population pool.

For example, if I said rolling odd numbers is a death and even is a birth and I rolled a 1 and 4 I might say one death occurred and 2 births!

8. Record your data in the data table
9. After six years (rounds) take data points and plot on graph.

Years (round)	1	2	3	4	5	6	Total
Births							
Deaths							
Organisms							N/A

Years (round)	1	2	3	4	5	6	Total
Births							
Deaths							
Organisms							N/A



Which mission did you achieve? (Circle one)

Mission 1: Make the population size stay the same over time.

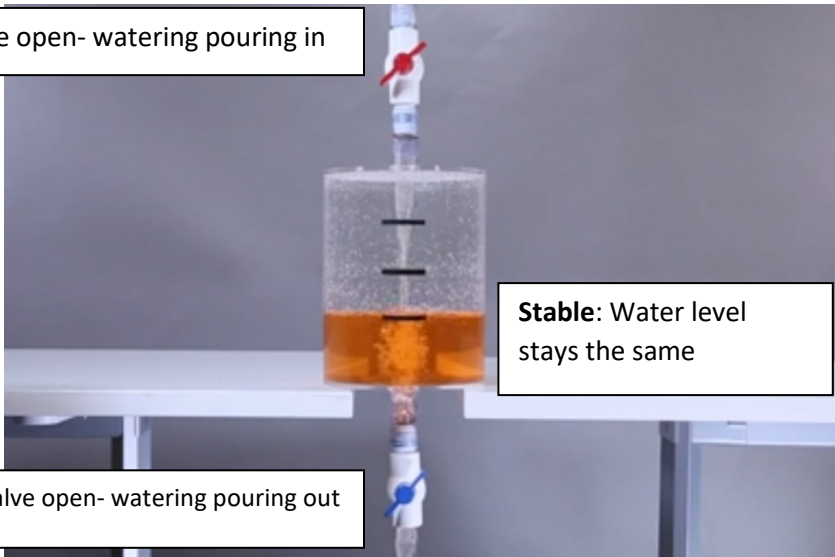
Mission 2: Make the population size increase over time.

Mission 3: Make the population size decrease over time.

1. Play again until you achieve the different missions, what do you notice about the birth- death **ratio** for each mission?

Observing a Physical Model

Valve open- watering pouring in



Stable: Water level stays the same

Valve open- watering pouring out

In the physical model, what would represent births to a population? (*Circle one*)

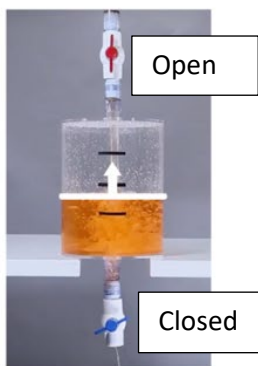
Water In Water Out

In the physical model, what would represent deaths in a population? (*Circle one*)

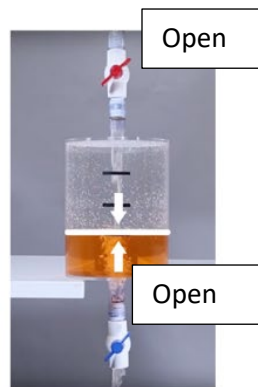
Water In Water Out

- The system is currently **stable- the water level stays the same** because the same amount of water is being put in as taken out. Make a prediction for how to cause the water level to change:

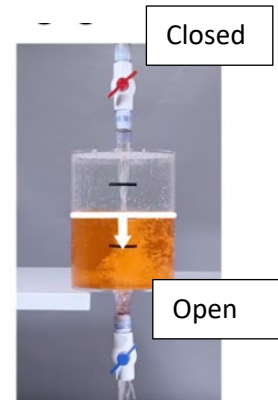
Explain how this model can represent how a population is stable vs. changing?



more added than removed



amount added and removed are equal



less added than removed

Key Concept: Write a 1-3 sentence summary of what the game and video helped us understand about changes in populations?

In a population, there are **always** deaths and births. Explain how the meerkat population was staying the same even though there were deaths and births during the time period.
