

Name _____ Period _____

Skill 3.1 Exercise 1	
What is meant by Big Data?	
Watch the videos below. As you watch, identify examples of Big Data.	
	
https://www.youtube.com/watch?v=1XGo8K1boH4	https://www.youtube.com/watch?v=bMrDhtGHFR4
Examples of Big Data:	Examples of Big Data:

Skill 3.2 Exercise 1
Which of the following best describes the ability of parallel computing solutions to improve efficiency?
Under what conditions is a parallel computing solution not possible?

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Skill 3.2 Exercise 2

A computer has two processors that are able to run in parallel. The table below indicates the amount of time it takes either processor to execute four different processes. Assume that none of the processes is dependent on any of the other processes.

Process	Execution Time
W	20 seconds
X	30 seconds
Y	45 seconds
Z	50 seconds

A program is used to assign processes to each of the processors. Which of the following describes how the program should assign the four processes to optimize execution time?

- (a) Processes W and X should be assigned to one processor, and processes Y and Z should be assigned to the other processor.
- (b) Processes W and Y should be assigned to one processor, and processes X and Z should be assigned to the other processor.
- (c) Processes W and Z should be assigned to one processor, and processes X and Y should be assigned to the other processor.
- (d) Process Z should be assigned to one processor, and processes W, X, and Y should be assigned to the other processor.

Skill 3.3 Exercise 1

Which of the following applications is most likely to benefit from the use of crowdsourcing?

- (a) An application that allows users to convert measurement units (e.g., inches to centimeters, ounces to liters)
- (b) An application that allows users to purchase tickets for a local museum
- (c) An application that allows users to compress the pictures on their devices to optimize storage space
- (d) An application that allows users to view descriptions and photographs of local landmarks

Skill 3.3 Exercise 2

Which of the following are true statements about how the Internet enables crowdsourcing?

- I. The Internet can provide crowdsourcing participants access to useful tools, information, and professional knowledge.
- II. The speed and reach of the Internet can lower geographic barriers, allowing individuals from different locations to contribute to projects.
- III. Using the Internet to distribute solutions across many users allows all computational problems to be solved in reasonable time, even for very large input sizes.

Skill 3.4 Exercise 1

Listen to the audio clip below.

ENVIRONMENT

< How Pokemon Inspired A Citizen Science Project To Monitor Tiny Streams

April 20, 2018 · 5:06 AM ET



3-Minute Listen

+ PLAYLIST



Name _____ Period _____

<https://www.npr.org/2018/04/20/597972310>

Explain how Citizen Science is being applied to contribute to scientific research and solve a problem.

Skill 3.4 Exercise 2

A small team of wildlife researchers is working on a project that uses motion-activated field cameras to capture images of animals at study sites. The team is considering using a “citizen science” approach to analyze the images. Which of the following best explains why such an approach is considered useful for this project?

- (a) Distributed individuals are likely to be more accurate in wildlife identification than the research team.
- (b) The image analysis is likely to be more consistent if completed by an individual citizen.
- (c) The image analysis is likely to require complex research methods.
- (d) The image analysis is likely to take a longer time for the research team than for a distributed group of individuals.

Skill 3.5 Exercise 1

A researcher wants to publish the results of a study in an open access journal. Which of the following is a direct benefit of publishing the results in this type of publication?

- (a) The researcher can allow the results to be easily obtained by other researchers and members of the general public.
- (b) The researcher can better anticipate the effect of the results and ensure that they are used responsibly.
- (c) The researcher can ensure that any personal information contained in the journal is kept private and secure.
- (d) The researcher can prevent copies of the research from being accessed by academic rivals.