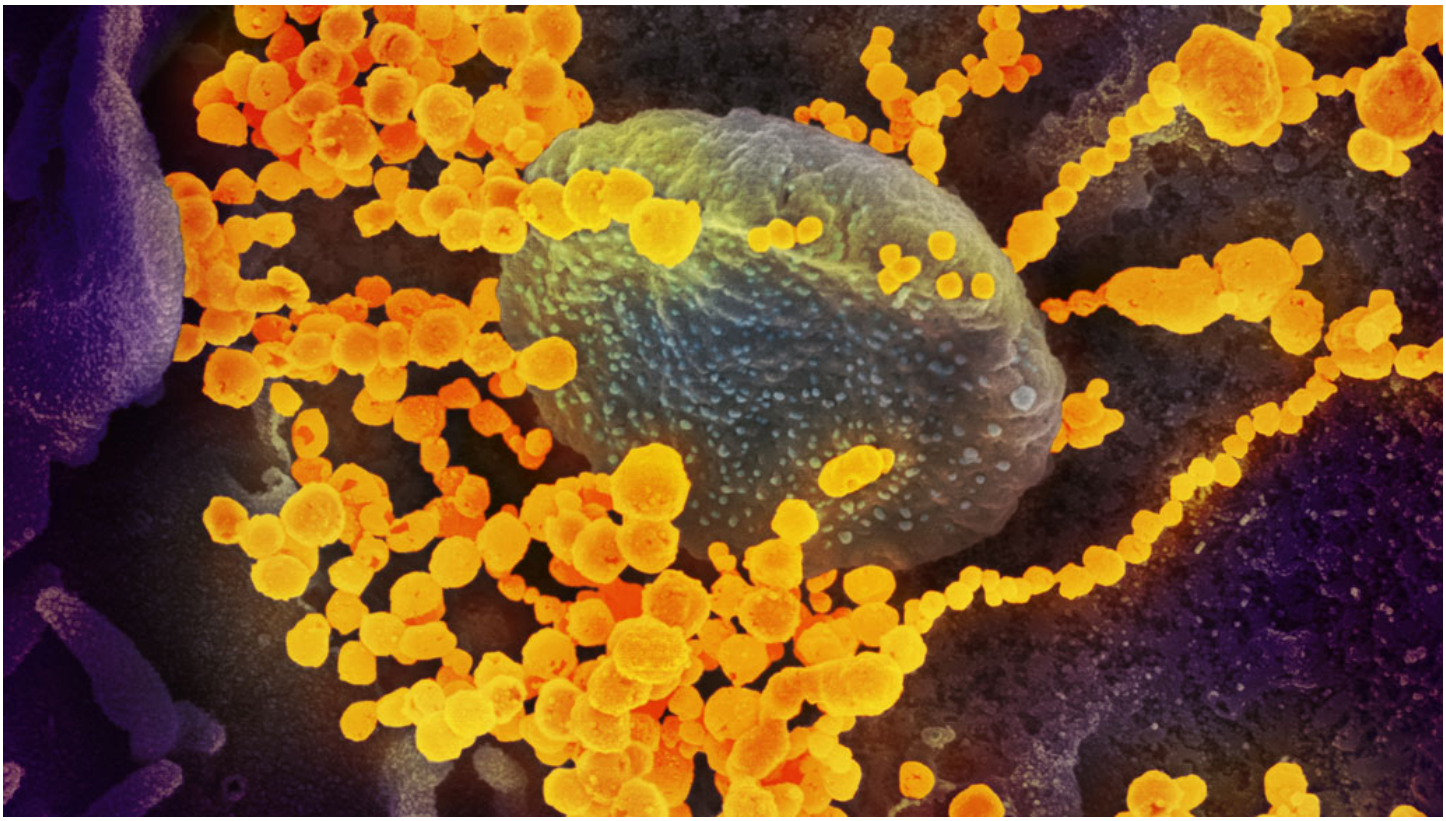
Science News

EDUCATOR GUIDE



NIAID-RML

December 19, 2020 & January 2, 2021

2020 Year in Review

SOCIETY FOR SCIENCE & THE PUBLIC

SN EDUCATOR GUIDE

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About this Guide

This Guide asks students to reflect on the scientific highs and lows of the last year as reported by *Science News*. Students will analyze summaries of awe-inspiring discoveries and reflect on the COVID-19 pandemic, including their lingering questions, personal experiences and hopes for the future.

This Guide includes:

Article-based Comprehension Q&A — Students will answer questions about the online *Science News* article "From Elvis worms to the Milky Way's edge, these science stories sparked joy in 2020," which summarizes *Science News* stories from 2020 that provided a happy distraction from the world's worries. A version of the story, "Stories that sparked joy," can be found in the December 19, 2020 & January 2, 2021 issue of *Science News*. Related standards include NGSS-DCI: HS-PS1; HS-PS2; HS-PS3; HS-LS2; HS-ESS1; HS-ETS1.

> **Student Comprehension Worksheet** — These questions are formatted so it's easy to print them out as a worksheet.

Cross-curricular Discussion Q&A — Students will review a timeline of major events related to the COVID-19 pandemic and discuss lingering questions about the pandemic. With a partner, students will reflect on how the pandemic has affected their life and what changes the near future may bring. Related standards include NGSS-DCI: HS-LS2; HS-ETS1.

> **Student Discussion Worksheet** — These questions are formatted so it's easy to print them out as a worksheet.

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Article-based Comprehension, Q&A

Directions for teachers: Ask your students to read the online *Science News* article "From Elvis worms to the Milky Way's edge, these science stories sparked joy in 2020," which recounts scientific discoveries from 2020 that inspired wonder and awe. A version of the story, "Stories that sparked joy," can be found in the December 19, 2020 & January 2, 2021 issue of *Science News*. After choosing the discovery that most interests them, students should use the *Science News* archive to find the original story about the discovery and answer the following questions. Note that example answers are based on the discovery of how tree snakes glide through the air. As a possible extension, students can reflect on something they learned in school this year that brought them joy.

1. After reading "From Elvis worms to the Milky Way's edge, these science stories sparked joy in 2020," what discovery most interests you?

Student answers will vary. As an example, students may say that they found the discovery of how paradise tree snakes glide through the air most interesting.

2. Why do you find the topic of this summary interesting? How does the topic make you feel? Explain.

Student answers will vary.

3. What did you learn from the summary?

Student answers will vary. As an example, students may say that they learned the snakes can glide 10 meters or more by moving their bodies both side to side and up and down.

4. What questions do you have after reading the summary?

Student answers will vary. As an example, students may wonder how paradise tree snakes launch themselves into the air, or how engineers determined that the snakes' body movements help stabilize the reptiles in the air.

5. Use the *Science News* archive to find and read the original story about the discovery. What details in the original story were left out of the summary?

Student answers will vary. As an example, students may say that the summary didn't include details about the methods of the study or why the finding is important.

6. Did the same author write both articles? Why do you think the author of the summary may have left out certain details?

Student answers will vary. As an example, students may say that they think the author left out details about methods because they weren't necessary to get across the main finding in such a short summary.

7. Did the original story answer questions you may have had after reading the summary?

Student answers will vary. As an example, students may say that the original story answered the questions they had. Tree snakes leap and flatten their bodies to lift themselves into the air. And the researchers used a combination of observations and computer simulations to identify the movements the snakes use to glide.

Possible extension

8. Describe something you learned in science this year that made you happy. Explain what it was, and why it had that effect on you.

Student answers will vary.

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Student Comprehension Worksheet

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Cross-curricular Discussion, Q&A

Directions for teachers:

Use the online *Science News* articles "This COVID-19 pandemic timeline shows how fast the coronavirus took over our lives" and "As 2020 comes to an end, here's what we still don't know about COVID-19," as well as the prompts below to have students reflect on the COVID-19 pandemic with a partner in class or with a family member at home. As a final exercise, have students read at least one expert interview highlighted in the online *Science News* article "Hear from people taking action against COVID-19." Versions of these stories appear in the December 19, 2020 & January 2, 2021 issue of *Science News*. Students should interview their partners, write up their answers to the five questions and create their own "Voices from the pandemic" entry. You can share your top three student responses to the *Science News* for Students and Educators Edmodo group.

Want to make it a virtual lesson? Post the online *Science News* articles, "This COVID-19 pandemic timeline shows how fast the coronavirus took over our lives," "As 2020 comes to an end, here's what we still don't know about COVID-19" and "Hear from people taking action against COVID-19," to your learning management system. Pair up students and allow them to connect via virtual breakout rooms in a video conference, over the phone, in a shared document or using another chat system. Have each student submit their "Voices from the pandemic" entry to you.

Student Directions: Discuss and answer the following questions about the COVID-19 pandemic with either a classroom partner or a family member. Then, interview your partner or family member about their experience with the pandemic and vice versa and write up a summary of their responses.

Pandemic timeline

Read the online *Science News* article "This COVID-19 pandemic timeline shows how fast the coronavirus took over our lives," then use the following questions to discuss the timeline of events with a partner or a family member. Make sure your partner has had the opportunity to read the article as well. A version of this story, "A year of living with a new virus," appears in the December 19, 2020 & January 2, 2021 issue of *Science News*.

1. What types of events are included in the timeline? How do events during the early months of the pandemic compare with later months?

Types of events include the locations of initial reported infections, total infections and fatalities, treatment and vaccine information, and state-wide orders. In the early months of the pandemic, the events trace the virus's discovery and spread across the globe. As the year progresses, the events are related to growing numbers of infections and deaths, as well as developments around treatments and vaccines.

2. What three adjectives best summarize your reaction to the COVID-19 pandemic timeline?

Student answers will vary but might include words like exponential, global, fast, scary, etc.

3. Are there any events in the timeline that surprise you? If so, explain.

Student answers will vary.

4. What sources do you use to keep up with pandemic news? Do you notice any discrepancies between your prior knowledge of events and the information presented in the timeline? If so, why might the timeline differ from your memory of events?

Student answers will vary, but students may mention that their prior knowledge of a specific event differs from the timeline because they missed new information about the event that was reported after it happened.

5. Add at least three events to the timeline that reflect what you know of your community's local response to the pandemic. How do your events compare with the national and global events mentioned? Explain.

Student answers will vary.

Unanswered questions

Discuss and list two questions you have about the COVID-19 pandemic with your partner or family member. Suggest strategies for how scientists could address your questions.

Question 1:

Question 2:

Student answers will vary. Students may ask how long immunity to COVID-19 lasts, and suggest that to find out, scientists and public health officials should recruit and monitor over time several groups of people who have recovered from COVID-19. The groups should be as large and diverse as possible to ensure a wide sample set. Scientists should test the groups regularly for the coronavirus and the antibodies that indicate immunity. This testing may have to go on for a long time, until a conclusion can be confidently reached. Other questions could include: When will the pandemic end? Why do only certain people exhibit symptoms and get sick? What are the long-term consequences of contracting COVID-19? How effective will a vaccine be? How long will immunity last?

Looking for answers
Read the online *Science News* article "As 2020 comes to an end, here's what we still don't know about COVID-19," and answer the following questions. A version of this story, "Lingering questions about COVID-19," appears in the December 19, 2020 & January 2, 2021 issue of *Science News*.

1. How do your questions compare with the questions covered in the *Science News* article? Did you ask a question that was covered in the *Science News* article?

Student answers will vary, but students could mention that one or both of their questions are also given in the article. For example, students might ask how long immunity to COVID-19 lasts, which was addressed in the Science News *article.*

2. If either of your questions were covered in the *Science News* article, did the article cover proposed strategies for how to answer the question? How does your proposed strategy compare with what scientists are doing? Based on the information given in the article, about how close are scientists and officials to answering the question?

Student answers will vary. If students asked how long immunity to COVID-19 lasts, their answer may mention that studies to determine the likelihood of reinfection are underway, but the article does not suggest a timeframe for determining an answer or give specific suggestions about how the study should collect data. The article also states that some information about COVID-19 immunity could possibly be gained by collecting data from other types of coronavirus infections, such as SARS and MERS. Currently, the duration of immunity after an infection of a coronavirus that causes SARS and MERS is also unknown.

Share your voices
Read at least one expert interview highlighted in the online *Science News* article "Hear from people taking action against COVID-19." Some interviews appear in the December 19, 2020 & January 2, 2021 issue of *Science News* as "Voices from the pandemic." Then, use the following questions to interview your partner or a family member about their own pandemic experience. Use the answers to write a "Voices from the pandemic" entry about your partner or family member. Once you've interviewed your partner or family member, they should interview and write an entry about you.

1. What is your name? Where do you live and what do you do?

2. How has the pandemic changed your life?

3. What do you miss about your old life?

4. How do you think your life will be different six months from now? Do you think you will have resumed hobbies and activities that you enjoyed before the pandemic? What do you think the next school year will look like?

5. What hopes do you have for the end of the pandemic and your life afterward?

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