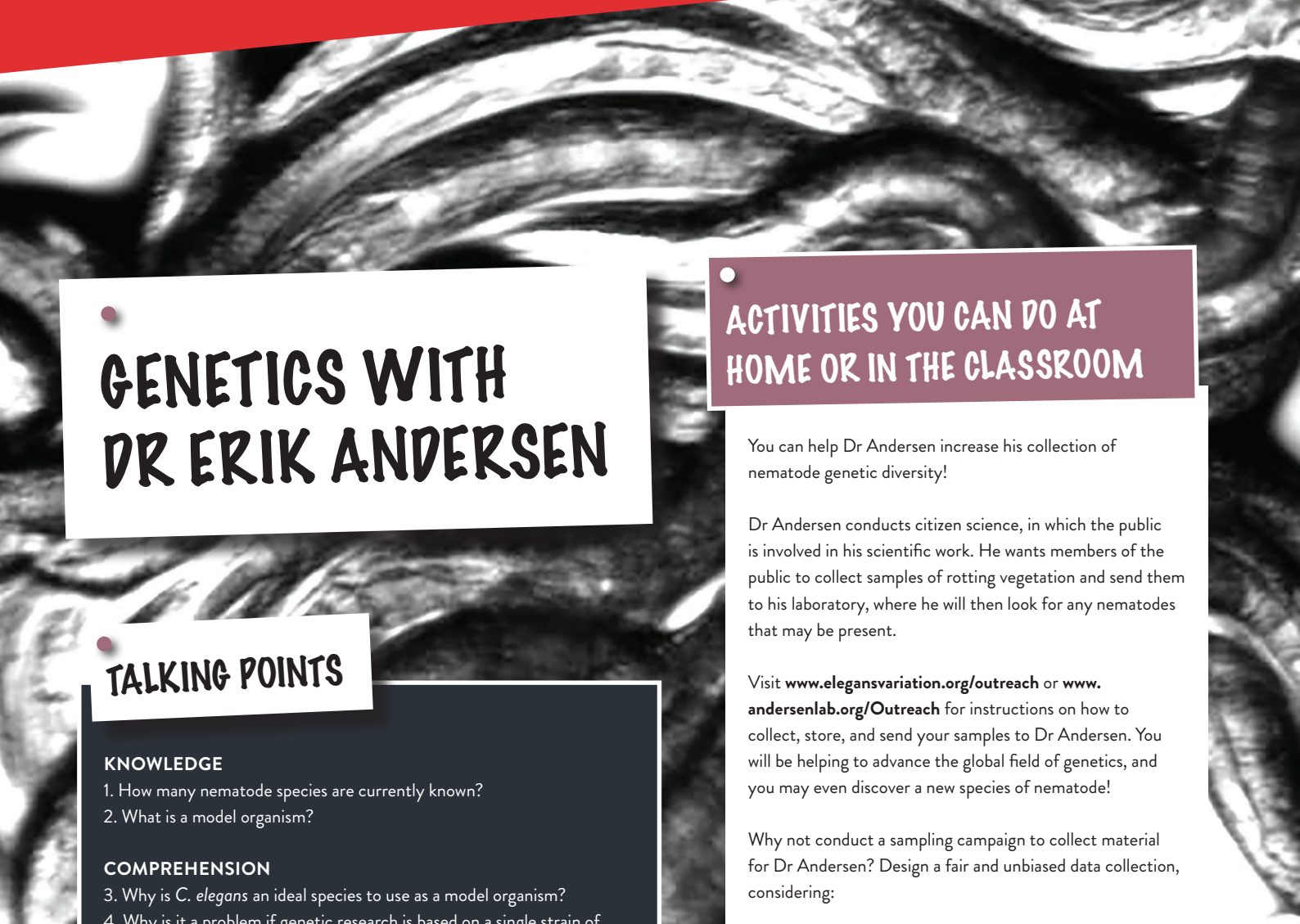

GENETICS WITH DR ERIK ANDERSEN

TALKING POINTS

KNOWLEDGE

1. How many nematode species are currently known?
2. What is a model organism?

COMPREHENSION

3. Why is *C. elegans* an ideal species to use as a model organism?
4. Why is it a problem if genetic research is based on a single strain of *C. elegans*?

APPLICATION

5. How would you convince geneticists currently using a single strain of *C. elegans* that including wild strains would improve the results from their experiments?

ANALYSIS

6. What difficulties might Dr Andersen face when collecting nematode samples in Hawaii?
7. Why did Dr Andersen choose Hawaii as a location for sampling genetic diversity in *C. elegans*?

EVALUATION

8. Why do you think most research is still only done on one laboratory grown strain of *C. elegans*?
9. Dr Andersen wants members of the public to collect nematodes for him. What are the advantages of citizen science in scientific research?

CREATIVITY

10. Imagine you are a member of Dr Andersen's lab. He has asked you to compare the genetic diversity of two *C. elegans* populations: one in a city and one in a forest. *C. elegans* nematodes have been spread by humans in our waste and now live in most environments. What do you expect the results of your study to be? What samples would you collect to prove or disprove this?

ACTIVITIES YOU CAN DO AT HOME OR IN THE CLASSROOM

You can help Dr Andersen increase his collection of nematode genetic diversity!

Dr Andersen conducts citizen science, in which the public is involved in his scientific work. He wants members of the public to collect samples of rotting vegetation and send them to his laboratory, where he will then look for any nematodes that may be present.

Visit **www.elegansvariation.org/outreach** or **www.andersenlab.org/Outreach** for instructions on how to collect, store, and send your samples to Dr Andersen. You will be helping to advance the global field of genetics, and you may even discover a new species of nematode!

Why not conduct a sampling campaign to collect material for Dr Andersen? Design a fair and unbiased data collection, considering:

- How to ensure your sampling is representative of the environment – will you collect samples at regular or random intervals?
- The type of samples you collect – pick up a variety of materials (fruits, nuts, flowers, seeds, leaf litter, etc.) to hopefully get a variety of nematode species.
- The location of your samples – collect samples from different environments, and make sure you record from where each sampled is collected.
- Environmental parameters – record any environmental conditions when you collect samples such as the temperature of the air and soil.

MORE RESOURCES

Visit the website for Dr Andersen's lab to read about the latest updates and information on openings for students: **www.andersenlab.org**

Read more about Dr Andersen's *C. elegans* genetic diversity database: **www.elegansvariation.org**

Check out Wormbook (**www.wormbook.org**) if you are interested to learn more about *C. elegans* research.