ASTROPHYSICS WITH DR BRAD NEWTON BARLOW

TALKING POINTS

KNOWLEDGE

1. How many hot subdwarf stars are known in our Galaxy? Of these, how many have Brad's team identified as potential variable stars? And how many have they confirmed as new variable stars?

COMPREHENSION

2. What can happen when a white dwarf and another star in a binary system collide?
3. Can you explain why some stars appear to vary in brightness?
4. Can you explain how Brad's Gaia error bar method works? How has it helped to detect new variable stars?

APPLICATION

5. Brad encourages his students to get involved in all aspects of his research. Which aspect mentioned in the article would you most like to participate in, and why?

ANALYSIS

6. How do you think Brad's students benefit from his mentorship and inclusion in his research?
7. Brad's former student, Rodrigo, is now studying in a completely different field. How do you think his experiences of working in astrophysics with Brad have influenced his research in biology? Why do you think scientists benefit from working in different fields?

CREATIVITY

8. Brad's students regularly discover new stars during their work with the team. How would you feel if you discovered a new object in the universe while still a student?
9. The technical limitations of transferring data to Earth means that many observations made in space are being wasted. Can you imagine how astrophysicists feel about this, knowing that the data have been captured, but that they are unable to access and study them? How do you think this problem could be solved?

ACTIVITIES YOU CAN DO AT HOME OR IN THE CLASSROOM

- Take a virtual tour of the night sky, learn about cosmic events, or look around Brad's planetarium through the series of videos available on the Culp Planetarium YouTube channel: **https://www.youtube.com/channel/UCkhT--LJ-Gj37kgXTEqTF8Q**

- Brad recently launched an outreach initiative where his astronomy students worked with local school children and taught them how to use robotic telescopes to view objects in space: **http://physics.highpoint.edu/~bbarlow/laser**

- Use satellite data to participate in real-life citizen science. Learn about current space exploration and build a cardboard Mars rover. Take part in competitions to design and build a spacesuit or satellite, create an agricultural system for spacecraft, or launch your own rocket to support a NASA mission.

Visit NASA's website to find a whole range of space-related activities: **https://www.nasa.gov/stem**

- Brad recommends NASA's Citizen Science webpage, which links to numerous projects you can participate in: **https://science.nasa.gov/citizenscience**

One of these projects even allows you to use data from the same satellite Brad uses (TESS) and search for transiting exoplanets: **https://www.zooniverse.org/projects/nora-dot-eisner/planet-hunters-tess**

- Check out the Culp Planetarium resources available online at: **www.highpoint.edu/planetarium**

- Visit the European Space Agency's website: **www.esa.int**

MORE RESOURCES

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