QuarkNet Survey

We appreciate your participation in this survey and we will use this information to inform the funders of the program as well as to help guide our thinking about program changes and improvements. Please take the time to tell us about your QuarkNet experience(s) and how and in what ways your QuarkNet engagement may have helped to change or improve your classroom instruction. Please answer all questions to the best that you can; your answers will be kept confidential. We ask that you provide your name for tracking and follow-up purposes only.

1. Today's Date

2. Your Email Address (optional)

3. Your Name (optional)

4. Your Gender

5. For how many years (approximately) have you participated in QuarkNet (including today or your most recent participation)?

| | hat is the name of the QuarkNet center (university/institution) where have participated? |
|------------|---|
| | |
| 8. W | hat is the name of the school (or district) where you teach? |
| | |
| 9. W | hat best describes the location of your school? |
| \bigcirc | Rural 🔵 Urban, central city 🔵 Urban 🔵 Suburban |
| 10. F | For how many years have you been at this school? |
| 11. ł | low many years have you been teaching? |
| | |
| 12. [| Do you teach physics? |
| \bigcirc | Yes No |
| | f yes, please specify year (e.g., 9th, 10th) and whether General or ceptual, AP, Honors. |
| | |
| | Can we contact you for a follow-up interview to talk with you about approach to teaching? |
| \bigcirc | Yes 🔘 No |
| \bigcirc | |

| 2019 | QuarkNet | Teacher | Survey |
|------|----------|---------|--------|
|------|----------|---------|--------|

Your Participation in QuarkNet Workshops/Programs

15. Which QuarkNet Workshops or Programs have you participated in? *(Check all that apply. If not on the list, please provide a brief description.)*

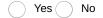
| Data Camp |
|---|
| ATLAS Data Workshop |
| CMS Data Workshop |
| CMS e-Lab Workshop |
| Cosmic Ray e-Lab Intro Workshop |
| Cosmic Ray e-Lab Advanced Topics Workshop |
| Neutrino Data Workshop |
| ATLAS Masterclass |
| CMS Masterclass |
| Neutrino Masterclass |
| CERN Summer Program |
| W2D2 |
| International Cosmic Day |
| International Muon Week |
| Other (please specify) |
| |

16. Of these, which do you think have been most helpful to you in your teaching? *Please briefly describe why.*

Your Use of the Data Activities Portfolio

The Data Activities Portfolio is QuarkNet's online compendium of instructional materials and suggested instructional pathways.

17. Have you used any of the activities in the Data Activities Portfolio in your classroom?



18. Please give us an example(s) of which of these activities in the Data Activities Portfolio you have used most often and/or that you think have been most helpful in teaching physics related to content and/or pedagogy.

19. Would you recommend (or have you recommended) the Data Activities Portfolio to other high school physics or physical science teachers?



20. Please tell us why you would or would not recommend instructional materials in the Data Activities Portfolio.

Your Assessment of QuarkNet

Please rate the following strategies based on your current QuarkNet program experience and, if applicable, on your previous involvement in QuarkNet programs to date. If you have participated in QuarkNet for many years, please respond based on what you think the cumulative effect of this participation has been over the past two years.

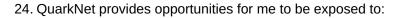
| 21. QuarkNet pro | Poor | Fair | Average | Good | Excellent | N/A |
|--|------------|------------|------------|------------|------------|------------|
| a. Engage as an active learner, as a student. | | | | | | |
| b. Do science the way scientists do science. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| c. Engage in authentic particle physics investigations (that may or may not involve phenomenon known by scientists). | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| d. Engage in authentic data analysis experiment(s) using large data sets. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| e. Develop explanations of particle physics content. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| f. Discuss the concept of uncertainty in particle physics. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |

| | Poor | Fair | Average | Good | Excellent | N/A |
|---|------------|------------|------------|------------|------------|------------|
| a. Engage in project-based learning that models guided- inquiry strategies. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| b. Share ideas related to content and pedagogy. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| c. Review and select particle physics examples from the Data Activities Portfolio instructional materials. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| d. Use the pathways, suggested in the Data Activities Portfolio, to help design classroom instructional plan(s). | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| e. Construct classroom implementation plan(s), incorporating experience(s) and Data Activities Portfolio instructional materials. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| f. Become aware of resources beyond my classroom. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| | | | | | | |

23. Please use the space below to tell us anything you would like us to know regarding your ratings of the strategies mentioned above.

Your Assessment of QuarkNet (con't.)

Please rate the following big-picture strategies based on your current QuarkNet experience and, if applicable, on your previous involvement in QuarkNet programs to date. If you have participated in QuarkNet for many years, please respond based on what you think the cumulative effect of this participation has been over the past two years.



| | Poor | Fair | Average | Good | Excellent | N/A |
|---|------------|------------|------------|------------|------------|------------|
| a. Instructional strategies that model active, guided-inquiry learning (related to NGSS science and engineering practices). | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| b. Big Idea(s) in Science (cutting-edge research) and Enduring Understandings (in particle physics). | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |

25. Provide opportunities for teachers and mentors to:

| | Poor | Fair | Average | Good | Excellent | N/A |
|---|------------|------------|------------|------------|------------|------------|
| a. Interact with other scientists and collaborate with each other. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| b. Build a local (or regional) learning community. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |

26. Please use the space below to tell us anything you would like us to know regarding your ratings of the big-picture strategies mentioned above.

Your Assessment of QuarkNet (con't.)

The next set of questions will ask about classroom instruction and QuarkNet's influence.

27. In thinking about your approach to teaching, please rate the frequency in which you engage in each of the following in your classroom.

| | Almost Always | Very Often | Sometimes | Not Very Often | Rarely | N/A |
|---|------------------|------------|------------|-------------------|------------|------------|
| a. Discuss and explain concepts in particle physics. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| b. Engage in scientific practices and discourse. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| c. Use particle physics examples, including authentic data, when teaching subjects such as momentum and energy. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| d. Review and use instructional materials from the Data Activities Portfolio. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| e. Selecting these lessons guided by the suggested pathways. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| f. Facilitate student investigations that incorporate scientific practices. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |

28. Now, indicate the degree to which you think QuarkNet has contributed to your implementation of these instructional strategies in your classroom.

| | Very High | High | Moderate | Low | Very Low | N/A |
|---|------------|------------|------------|------------|------------|------------|
| a. Discuss and explain concepts in particle physics. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| b. Engage in scientific practices and discourse. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| c. Use particle physics examples, including authentic data, when teaching subjects such as momentum and energy. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| d. Review and use instructional materials from the Data Activities Portfolio. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| e. Selecting these lessons guided by the suggested pathways. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| f. Facilitate student investigations that incorporate scientific practices. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |

29. In thinking about your approach to teaching, please rate the frequency in which you engage in each of the following in your classroom.

| | Almost Always | Very Often | Sometimes | Not Very Often | Rarely | N/A |
|---|------------------|------------|------------|-------------------|------------|------------|
| a. Use active, guided-inquiry instructional practices that align with science practice standards (NGSS and other standards). | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| b. Use instructional practices that model scientific research. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| c. Ilustrate how scientists make discoveries. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| d. Demonstrate how to use, analyze and intepret authentic data. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| e. Demonstrate how to draw conclusions based on these data. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| f. Become more comfortable teaching inquiry- based science. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |

Very High High Moderate Low Very Low N/A a. Use active, guided-inquiry instructional practices that align with science practice standards (NGSS and other standards). b. Use instructional \bigcirc practices that model scientific research. c. Illustrate how scientists make discoveries. d. Demonstrate how to use, analyze and interpret authentic data. e. Demonstrate how to draw conclusions based on these data. f. Become more comfortable teaching inquirybased science.

30. Now, indicate the degree to which you think QuarkNet has contributed to your implementation of these instructional strategies in your classroom.

Your Assessment of QuarkNet (con't.)

31. Please respond to the following statements.

| | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|--|-------------------|------------|------------|------------|----------------------|
| a. I use resources (including QuarkNet resources) to supplement my knowledge and instructional materials and practices. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| b. I have increased my science proficiency. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| c. I have developed collegial relationships with scientists and other teachers. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| d. I think my students have become more comfortable with inquiry-based science. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |

Your Assessment of QuarkNet (con't.)

This last set of questions asks about your students' classroom engagement and how QuarkNet may have influenced (through your participation and/or your students) this engagement. In your judgment, please indicate ...

32. My students are able to:

| | Almost Always | Very Often | Sometimes | Not Very Often | Rarely | N/A |
|--|------------------|------------|------------|-------------------|------------|------------|
| a. Discuss and explain concepts in particle physics. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| b. Discuss and explain how scientists develop knowledge. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| c. Engage in scientific practices and discourse. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| d. Use, analyze and interpret authentic data. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| e. Draw conclusions based on these data. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |

33. Now, indicate the degree to which QuarkNet (either because of your participation and/or theirs) has contributed to your students' engagement. QuarkNet has helped my students to:

| | Very High | High | Moderate | Low | Very Low | N/A |
|--|------------|------------|------------|------------|------------|------------|
| a. Discuss and explain concepts in particle physics. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| b. Discuss and explain how scientists develop knowledge. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| c. Engage in scientific practices and discourse. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| d. Use, analyze and interpret authentic data. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |
| e. Draw conclusions based on these data. | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc | \bigcirc |

34. Please use the space below for anything else you would like us to know about your QuarkNet experience or your approach to teaching science in your classroom. *Thank you for your participation. We appreciate it*!