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| **Facilitation Guide**  **Educational Service District 123 and Pacific Northwest National Laboratory**  **Exploring Climate Science with Virtual Reality**  Classroom Connections  Field Experience with Scientists  Understanding Standards and Phenomena | | |
| Slide 1 |  | * Restrooms / Evacuation Site / Escorted Badges   **Slide 1 5 minutes**  **Welcome to Exploring Climate Science With Virtual Reality(Georgia)**   * Review Agenda * Wear two Hats (label binder tabs) * Adult Learner Hat * Teacher Hat |
| Slide 2 |  | Slides 2-4 10 to 12 minutes  Review the graphic of the importance for our future STEM Professionals of engaging in Teacher Scientist Partnerships |
| Slide 3 |  | Slides 2-4 10 to 12 minutes   * Pass out Norms of Collaboration from Center for Adaptive Schools * Read over the document * identify one norm you will work on this week and share with a colleague |
| Slide 4 |  | Slides 2-4 10 to 12 minutes  Review Collegial VS Congenial Teams and point out we strive to be collegial in order to move learning forward   * Skim the document * Discuss the notion of these two things |
| Slide 5 |  | Slides 5-9 15 to 20 minutes   * Hand out LRBs and Ribbons * Hand out Unclassified LRBs * Share slides of scientists and Frannie’s notebooks in the field. * Think about the types of data and the level of detail you desire |
| Slide 6 |  | Slides 5-9 15 to 20 minutes |
| Slide 7 |  | Slides 5-9 15 to 20 minutes |
| Slide 8 |  | Slides 5-9 15 to 20 minutes |
| Slide 9 |  | Slides 5-9 15 to 20 minutes  Now time to work with Climate Scientists for the next day and a half. |
| Slide 10 |  | Slide 10  **Marker for Teacher Hat day** |
| Slide 11 |  | **Slides 11-17 30 minutes**   * Hand out and examine all SEPs * Show Bethany video and have participants identify the SEPs they see in the video * Whole Group Share Out * Make a claim about what you saw and provide evidence |
| Slide 12 |  | **Slides 11-17 30 minutes**  Pass out SEPs  Explain Matrices  Walk through the parts |
| Slide 13 |  | **Slides 11-17 30 minutes**  Pass out SEPs  Explain Matrices  Walk through the parts |
| Slide 14 |  | **Slides 11-17 30 minutes**  Pass out SEPs  Explain Matrices  Walk through the parts |
| Slide 15 |  | **Slides 11-17 30 minutes**  Pass out SEPs  Explain Matrices  Walk through the parts |
| Slide 16 |  | **Slides 11-17 30 minutes**  Directions for them to jigsaw the 8 Science and Engineering Practices in teams of 8 |
| Slide 17 |  | **Slides 11-17 30 minutes**  AST Bethany’s class  https://ambitiousscienceteaching.org/high-school-series-%E2%80%A2-ecosystem-dynamics/#1479376606316-a25bc7d0-9145  Start at about 1:56 and go to 8:55 about 7 minutes  Pass out the recording sheet  Each take an SEP, make notes on recording sheet  read the general descriptor section of SEPs and then study the 9-12 column  Discuss what you saw on the video ...which SEPs, how strong, how integrated |
| Slide 18 |  | **Slides 18-23 20 25 minutes**   * Hand out and examine all Crosscutting Concepts Matrix * Talk through each part of the Matrix * Show How Whales Change Climate video * Have people spot where they see CC connections that could be exploited * Stand and share or Walk and Talk |
| Slide 19 |  | **Slides 18-23 25 minutes**   * Hand out and examine all Crosscutting Concepts Matrix * There are 7 Crosscutting concepts and a little general description is given for each * Show How Whales Change Climate video * Have people spot where they see CC connections that could be exploited * Stand and share or Walk and Talk |
| Slide 20 |  | **Slides 18-23 25 minutes**   * Hand out and examine all Crosscutting Concepts Matrix * Each Crosscutting Concept is broken down by grade band and described with specificity for that grade band * Show How Whales Change Climate video * Have people spot where they see CC connections that could be exploited * Stand and share or Walk and Talk |
| Slide 21 |  | **Slides 18-23 25 minutes**   * Hand out and examine all Crosscutting Concepts Matrix * The idea is that complexity in the Crosscutting Concepts increases as you move from K to 12 * Show How Whales Change Climate video * Have people spot where they see CC connections that could be exploited * Stand and share or Walk and Talk |
| Slide 22 |  | **Slides 18-23 25 minutes**   * Hand out and examine all Crosscutting Concepts Matrix * Show How Whales Change Climate video-the picture is linked * Have people spot where they see CC connections that could be exploited * Shand and share or Walk and Talk   https://www.youtube.com/watch?v=rwZR28su0FU |
| Slide 23 |  | **Slides 18-23 25 minutes**   * Hand out and examine all Crosscutting Concepts Matrix * Show How Whales Change Climate video * Have people spot where they see CC connections that could be exploited * Stand and share or Walk and Talk * Share possible connections on table |
| Slide 24 |  | **Slides 24-27 30-45 minutes depending on time**   * Watch the video https://www.ngssphenomena.com/phenomena/#/deer-migration/ * (https://www.youtube.com/watch?v=Jyiv1Lc0dng&feature=youtu.be) This is an additional video from Brian Reiser on the NextGenScience.org site * Start the Heuristic * What did you do in your classroom right now… the top box * Read short Heuristic STEM Teaching Tool * Handout Phenomena Development Tool and tape into notebook and use it to take “notes to self” in the field. |
| Slide 25 |  | **Slides 24-27 30-45 minutes depending on time**   * Read the slide * Start the Heuristic * What did you do in your classroom right now… the top box * Watch the video (https://www.youtube.com/watch?v=Jyiv1Lc0dng&feature=youtu.be) * Read short Heuristic STEM Teaching Tool * Handout Phenomena Development Tool and tape into notebook and use it to take “notes to self” in the field. |
| Slide 26 |  | **Slides 24-27 30-45 minutes depending on time**   * Start the Heuristic * What did you do in your classroom right now… the top box * Read short Heuristic STEM Teaching Tool linked from STEM Teaching Tools from University of Connecticut * Handout Phenomena Development Tool and tape into notebook and use it to take “notes to self” in the field. |
| Slide 27 |  | **Slides 24-27 30-45 minutes depending on time**   * Start the Heuristic * What did you do in your classroom right now… the top box * Read short Heuristic STEM Teaching Tool linked from STEM Teaching Tools from University of Connecticut * Handout Phenomena Development Tool and tape into notebook and use it to take “notes to self” in the field. |
| Slide 28 |  | **Slides 28-30 15 minutes**  Disciplinary Core Ideas that were identified at the beginning of the Summer session on posters on the wall  Write down evidence from teacher experience this week that addressed these DCIs  Post them on the DCI posters |
| Slide 29 |  | **Slides 28-30 15 minutes**  Follow directions on Slide |
| Slide 30 |  | **Slides 28-30 15 minutes**  Follow directions on Slide |
| Slide 31 |  | * Creative Commons Licensing information |