

Engage	Explore	Explain	Elaborate/Extend	Evaluate
<p>The purpose for the ENGAGE stage is to pique student interest and get them personally involved in the lesson, while pre-assessing prior understanding.</p> <ul style="list-style-type: none"> ✓ Do you have a camera with you today? An iPhone 5S contains an 8-megapixel camera based on silicon material. ✓ The Hubble Space Telescope's Wide Field Camera 3 (WFC3) charge-coupled device (CCD) is a 16 megapixel array. What is an array? An arrangement of objects in rows and columns. ✓ What have you used in the past that is an array? An Excel spreadsheet, an xy graph in Math class. ✓ Open iPad Elements App and display pictures of silicon silicon and discuss properties. ✓ Display picture of Venus Flower Basket sponge that has a silicon skeleton. ✓ Teams will use iPads to photograph steps of project. 	<p>The purpose for the EXPLORE stage is to get students involved in the topic; providing them with a chance to build their own understanding.</p> <ul style="list-style-type: none"> ✓ What is the Hubble Space Telescope? Launched into space in 1990; orbits the earth above the atmosphere. Earth's atmosphere distorts and blocks light that reaches planet from the universe. Ground-based telescopes cannot see the same images that Hubble can record. ✓ Assign groups for group project. ✓ Display project rubric review elements. ✓ First step, select from following Hubble Gallery, download and note image credits. ✓ Create folder > 2 images. ✓ Open your computer and navigate to http://hubblesite.org/gallery/behind_the_pictures/meaning_of_color/ ✓ Part1 1&2 Construct 1 pixel camera - cup, tape, clips, pencil. 	<p>The purpose for the EXPLAIN stage is to provide students with an opportunity to communicate what they have learned so far and figure out what it means.</p> <ul style="list-style-type: none"> ✓ “think, pair, share” - What did you observe? ✓ “think, pair, share” - What questions do we have? ✓ Reconvene: What is your understanding of photons, electrons, and pixel “electric potential wells”? ✓ Google App - Team document - define photons, electrons, and pixel “electric potential wells”? ✓ Google App - Team document - document Hubble Images with image credits. ✓ Part2 Construct 9 pixel camera - cup, tape, clips, scissors, filter. ✓ Part3 Gliffy Document using Venn Circle Shapes - Conduct readout of camera. and record results. ✓ “think, pair, share” - What did you observe? 	<p>The purpose for the EXTEND stage is to allow students to use their new knowledge and continue to explore its implications.</p> <ul style="list-style-type: none"> ✓ Reconvene - What did you observe? ✓ “think, pair, share” - How do you capture color? ✓ Open your computer and navigate to http://hubblesite.org/gallery/behind_the_pictures/meaning_of_color/ ✓ “think, pair, share” - Explain to your team how Hubble captures color? ✓ Google App - Team document - write a paragraph on how Hubble captures color. ✓ Team meeting: Select images for VoiceThread Presentation. ✓ Google App - Team document - write a script for each slide including using virtual white board. 	<p>The purpose for the EVALUATION stage is for both students and teachers to determine how much learning and understanding has taken place.</p> <ul style="list-style-type: none"> ✓ Reconvene - What questions do you have regarding project before producing the VoiceThread? ✓ Team Meeting: Assign slide responsibilities to each team member. ✓ Organize images ✓ Using VoiceThread app, upload selected images from team's iPads. ✓ Schedule voiceovers/ annotations with team - quiet area using VoiceThread app or MacBook ✓ Review VoiceThread as a team and gain consensus on completion. ✓ Review VoiceThread with rubric. ✓ Team notifies Mrs. Mistretta of completed project for grading.