## OpenSciEd Key Instructional Elements

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Phenomena Based</strong></td>
<td>Students’ work is anchored in meaningful phenomena or problems that motivate building ideas over time.</td>
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| Centered around figuring out phenomena or solving problems | - Anchoring phenomena and problems are complex, relevant, and returned to as we figure out more.  
- Students investigate related phenomena to figure out pieces of the explanation.  
- Assessments ask students to make sense of specific and compelling phenomena using their understandings built during the unit. |
| **Coherent for Students**  | Students’ prior ideas and understandings are elicited, valued and built upon.  |
| Driven by students’ questions and ideas | - Students and teachers work together to figure out where to go next and what evidence is needed to answer their questions.  
- Students understand what they are doing and how it will help them answer questions about a larger phenomenon or solve a problem.  
- Students engage in science and engineering practices in meaningful ways in order to make progress on their questions. |
| **Driven by Evidence**  | Students’ ideas and questions determine what evidence to collect.  |
| Incremental building and revision of ideas based on evidence | - Students seek and use evidence to figure something out as they build and revise their explanations, models and arguments.  
- Investigations provide evidence to build new science ideas instead of confirming pre-taught ideas.  
- Evidence can be used to problematize our current thinking and help us think about where to go next. |
| **Collaborative**  | Students have opportunities to use, build upon, and critique other’s ideas.  |
| We figure out ideas together | - Students use evidence to support ideas, ask for evidence from others and suggest ways to get additional evidence.  
- Students have several opportunities to give and get feedback  
- The culture of the classroom supports risk-taking and changing our minds. |
| **Equitable**  | Students have multiple opportunities to make sense individually and through small and whole group discussions.  |
| Requires a classroom culture that values all ideas | - The class community values the diversity of resources students bring to science class, including language, gestures, metaphors, and various modes of expression.  
- Norms are established and revisited to support equitable sensemaking.  
- Teachers integrate a variety of assessment activities to elicit, interpret, and provide feedback to build from students’ diverse ideas and experiences.  
- Students understand how and why what they are learning is relevant to their own lives and their communities. |