|  |  |  |
| --- | --- | --- |
| **Stage One: Desired Results** |  |  |
| **Title:**Jellybean Geodesic Dome | **Grade/Subject/Course:**All Grades  | **Dates: September 8th – 12th**  |
| **Big Idea(s):**Structural support and collaboration  | **Teacher: Bertling - Leverett**  |  |
| **Focus Standards:** **Habits of the Mind****S5-1CS1. Students will be aware of the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works.** a. Keep records of investigations and observations and do not alter the records later. b. Carefully distinguish observations from ideas and speculation about those observations. c. Offer reasons for findings and consider reasons suggested by others. d. Take responsibility for understanding the importance of being safety conscious**.** **S5-1CS2. Students will have the computation and estimation skills necessary for analyzing data and following scientific explanations.** a. Add, subtract, multiply, and divide whole numbers mentally, on paper, and with a calculator. b. Use fractions and decimals, and translate between decimals and commonly encountered fractions – halves, thirds, fourths, fifths, tenths, and hundredths (but not sixths, sevenths, and so on) – in scientific calculations. c. Judge whether measurements and computations of quantities, such as length, area, volume, weight, or time, are reasonable answers to scientific problems by comparing them to typical values. **S5-1CS3. Students will use tools and instruments for observing, measuring, and manipulating objects in scientific activities.** a. Choose appropriate common materials for making simple mechanical constructions and repairing things. b. Measure and mix dry and liquid materials in prescribed amounts, exercising reasonable safety. c. Use computers, cameras and recording devices for capturing information. d. Identify and practice accepted safety procedures in manipulating science materials and equipment. **S5-1CS4. Students will use ideas of system, model, change, and scale in exploring scientific and technological matters.** a. Observe and describe how parts influence one another in things with many parts. b. Use geometric figures, number sequences, graphs, diagrams, sketches, number lines, maps, and stories to represent corresponding features of objects, events, and processes in the real world. Identify ways in which the representations do not match their original counterparts. c. Identify patterns of change in things—such as steady, repetitive, or irregular change—using records, tables, or graphs of measurements where appropriate. d. Identify the biggest and the smallest possible values of something. **Supporting Standards:** See focus standards |  |  |
| **Enduring Understandings:** | **Essential Questions:*** What is a geodesic dome
* How can one create the most stable geodesic dome
 |  |
| **Knowledge:*****Students will Know…**** How to work cooperatively as a group.
* Use critical thinking to solve a confronted problem.
 | **Skills:*****Students will be able to (do)…**** Critically think through a problem as a group and generate an artifact.
 |  |
| **Stage Two: Assessment Evidence** | **Other Evidence:*** Structure
* Worksheet
 |  |
| **Performance Tasks/Projects (Summary):**geodesic dome made from toothpicks and jelly beans  |  |  |

|  |  |
| --- | --- |
| **Opening**  |  |
| Every lesson will begin with students writing down their homework in agendas and a materials check. Next, students will be lead through the days objectives/standards and the outcomes associated with and discussion of the lessons essential question. The remaining time will be dedicated to quick review of prior lesson/homework and a short presentation on new material.  | **Evidence:** Oral conformation and discussions.  |
| **Work Session**  |  |
| **Tasks**: Next, students will work in cooperative small groups focused on accomplishing different task directly associated with the standard.  | **Evidence:** Successful completion of lab or other product generating activity. Oral conformation and discussion.  |
| **Closing** |  |
| **Summary:**  Class will end with a think-pair-share format where students discuss and share with the class what they learned. The teacher will facilitate this student lead activity with probing questions to guide and tie learning back to the standard(s) and the day’s essential question(s). Students will record their reflection on what was learning in their science notebook. | **Evidence:** Oral conformation and discussion. |

|  |  |  |
| --- | --- | --- |
| **Groups**  |  |  |
| **Based on behavior**  |  |  |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| **Weekly Lesson Plan Science**  |  |  |
| **Day** | **Instructional Strategies** | **Procedure** |
| **MON 9-8** |  | Labor Day |

|  |  |  |
| --- | --- | --- |
| **TUES 9-9** | Cooperative Learning Think-Pair-Share**Vocabulary*** Geodesic Dome
* Support
* Load

**Prior to Lesson*** Create Presentation
* Have <http://padlet.com/bertlph/dome>up on computers for students to share work.

**Student Grouping*** Based on behavior and academic needs.

**Materials:****(Each Student)*** Pencil
* STEM notebook

**(Each Group)*** Computer
* Jellybeans
* Toothpicks

 **(Teacher)**Promethean Board | **Geodesic Dome** **Enrichment Science Reading**: Geodesic Dome Challenge **Focus Standard:** **S5-1CS1. Students will be aware of the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works.** **S5-1CS2. Students will have the computation and estimation skills necessary for analyzing data and following scientific explanations.** **S5-1CS3. Students will use tools and instruments for observing, measuring, and manipulating objects in scientific activities.** **S5-1CS4. Students will use ideas of system, model, change, and scale in exploring scientific and technological matters.** **Opening**. 5 min* Standards and Essential Question
* Go over vocabulary. (Geodesic Dome, Support, Load)

**Lesson** 8 min* PowerPoint going over challenge. Build a geodesic dome out of jellybeans and toothpicks.
* Model how to collaboratively work in groups
* Handout materials

**Work period** 20min * Conduct challenge
* Teachers circulate around room observing and providing assistance.

**Closing** 12 min* Students share thoughts from computers using [www.padlet.com](http://www.padlet.com)
* Present geodesic domes to class and conduct load test
* Record loads for graphing activity during math class

**Homework*** None
 |
| **WEN 9-10** | Cooperative Learning Think-Pair-Share**Vocabulary*** Geodesic Dome
* Support
* Load

**Prior to Lesson*** Create Presentation
* Have http://padlet.com/bertlph/domeup on computers for students to share work.

**Student Grouping*** Based on behavior and academic needs.

**Materials:****(Each Student)*** Pencil
* STEM notebook

**(Each Group)*** Computer
* Jellybeans
* Toothpicks

 **(Teacher)**Promethean Board | **Geodesic Dome** **Enrichment Science Reading**: Geodesic Dome Challenge **Focus Standard:** **S5-1CS1. Students will be aware of the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works.** **S5-1CS2. Students will have the computation and estimation skills necessary for analyzing data and following scientific explanations.** **S5-1CS3. Students will use tools and instruments for observing, measuring, and manipulating objects in scientific activities.** **S5-1CS4. Students will use ideas of system, model, change, and scale in exploring scientific and technological matters.** **Opening**. 5 min* Standards and Essential Question
* Go over vocabulary. (Geodesic Dome, Support, Load)

**Lesson** 8 min* PowerPoint going over challenge. Build a geodesic dome out of jellybeans and toothpicks.
* Model how to collaboratively work in groups
* Handout materials

**Work period** 20min * Conduct challenge
* Teachers circulate around room observing and providing assistance.

**Closing** 12 min* Students share thoughts from computers using [www.padlet.com](http://www.padlet.com)
* Present geodesic domes to class and conduct load test
* Record loads for graphing activity during math class

**Homework*** None
 |

|  |  |  |
| --- | --- | --- |
| **THUR 9-11** | Cooperative Learning Think-Pair-Share**Vocabulary*** Geodesic Dome
* Support
* Load

**Prior to Lesson*** Create Presentation
* Have http://padlet.com/bertlph/domeup on computers for students to share work.

**Student Grouping*** Based on behavior and academic needs.

**Materials:****(Each Student)*** Pencil
* STEM notebook

**(Each Group)*** Computer
* Jellybeans
* Toothpicks

 **(Teacher)**Promethean Board | **Geodesic Dome** **Enrichment Science Reading**: Geodesic Dome Challenge **Focus Standard:** **S5-1CS1. Students will be aware of the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works.** **S5-1CS2. Students will have the computation and estimation skills necessary for analyzing data and following scientific explanations.** **S5-1CS3. Students will use tools and instruments for observing, measuring, and manipulating objects in scientific activities.** **S5-1CS4. Students will use ideas of system, model, change, and scale in exploring scientific and technological matters.** **Opening**. 5 min* Standards and Essential Question
* Go over vocabulary. (Geodesic Dome, Support, Load)

**Lesson** 8 min* PowerPoint going over challenge. Build a geodesic dome out of jellybeans and toothpicks.
* Model how to collaboratively work in groups
* Handout materials

**Work period** 20min * Conduct challenge
* Teachers circulate around room observing and providing assistance.

**Closing** 12 min* Students share thoughts from computers using [www.padlet.com](http://www.padlet.com)
* Present geodesic domes to class and conduct load test
* Record loads for graphing activity during math class

**Homework*** None
 |

|  |  |  |
| --- | --- | --- |
| **FRI 9-12** | Cooperative Learning Think-Pair-Share**Vocabulary*** Geodesic Dome
* Support
* Load

**Prior to Lesson*** Create Presentation
* Have http://padlet.com/bertlph/domeup on computers for students to share work.

**Student Grouping*** Based on behavior and academic needs.

**Materials:****(Each Student)*** Pencil
* STEM notebook

**(Each Group)*** Computer
* Jellybeans
* Toothpicks

 **(Teacher)**Promethean Board | **Geodesic Dome** **Enrichment Science Reading**: Geodesic Dome Challenge **Focus Standard:** **S5-1CS1. Students will be aware of the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works.** **S5-1CS2. Students will have the computation and estimation skills necessary for analyzing data and following scientific explanations.** **S5-1CS3. Students will use tools and instruments for observing, measuring, and manipulating objects in scientific activities.** **S5-1CS4. Students will use ideas of system, model, change, and scale in exploring scientific and technological matters.** **Opening**. 5 min* Standards and Essential Question
* Go over vocabulary. (Geodesic Dome, Support, Load)

**Lesson** 8 min* PowerPoint going over challenge. Build a geodesic dome out of jellybeans and toothpicks.
* Model how to collaboratively work in groups
* Handout materials

**Work period** 20min * Conduct challenge
* Teachers circulate around room observing and providing assistance.

**Closing** 12 min* Students share thoughts from computers using [www.padlet.com](http://www.padlet.com)
* Present geodesic domes to class and conduct load test
* Record loads for graphing activity during math class

**Homework*** None
 |