|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date: | | | Duration of Lesson: 60 minutes | |
| Title of Unit: IM Unit 1 Geometry | | | Title of Lesson: Surface Area of Prisms and Pyramids | |
| Lesson Objectives: Students will use a net to calculate the surface area of a prism or pyramid and explain (through discourse and writing) the solution method. | | | | |
| Groupings (e.g., whole class, small groups, co-teaching): Small groups of 3-4 students | | | | |
| Skills & Standards: [6.G.A.4](https://im.kendallhunt.com/standards#standard_330) Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems. | | | | |
| **Progression of Learning & Teaching** | | | | |
| Opener: | * Unfold nets out of 3-D polyhedral shapes * Provide examples and non-examples of student work where surface area was determined. We will discuss the mistakes and find the correct answer. | | | **Points to Remember**   * Answer keys are tools not for copying. Each student is responsible for practicing this objective and just copying from an answer key will not allow them to reach their goal. * Students use different strategies for finding the area of triangles. |
| Activities & Tasks: | * Work through a few examples with the students as you talk through your thinking. Ask the student’s questions to confirm their understanding. * Students will work in small groups at stations. * Each student will have a response sheet where they will identify the polyhedral created by their net and show how they found the surface area of each shape. * Each net will also include an answer key where students will check their thinking and correct any mistakes. | | | Resources:   * Geometry nets that fold into polyhedral shapes * Nets are labeled with bases and heights.   Vocabulary:   * Apex: the vertex at the top/opposite the base in a pyramid * Base: side of a polygon or a face of a polyhedron * Face: a flat surface that forms part of the boundary of a solid object. * Net: a two-dimensional (2D) shape that can be modified/folded to form a three-dimensional (3D) shape or a solid * Polyhedron: solid with flat faces (Note: no curved surfaces- cones, spheres and cylinders are not polyhedrons) * Prism: a solid shape that is bound on all its sides by plane faces, there are two types of faces in a prism. The top and bottom faces are identical and are called bases. * Pyramid: a polyhedron formed by connecting a polygonal base and a point, called the apex * Surface Area: total area of the surface of a three-dimensional object    Monitoring/Scaffolding:   * Opportunities for repeated exposure and practice with feedback using several cubes and rectangular prisms before building to pyramids and triangular prisms. * Hexagonal pyramids and prisms for an extension exercise. * Have vocabulary and formulas available for students. * Teacher will walk around the room to monitor calculations and participation through student work. * Homogenous groups for remediation and repeated practice. |
| Level of Cognitive Complexity: | ☐ Creating  ☐ Evaluating   Analyzing | Applying   Understanding  ☐ Remembering | |
| Key questions: | * What features help identify which polyhedron that can be assembled from a given net? * How can we differentiate prisms and pyramids? * Describe the surface area of a shape. * How is the volume of a shape related to area? | | |
| Closure: | * Students will identify the 3D shape and determine the formula based on the specific features of a shape. | | |
| Next Steps: | Students will practice using specific polyhedron formulas to determine surface area calculations. | | | **Formative Assessment Criteria for Success:**   * Exit slip |