

### Analyzing Prisms and Pyramids

This is just an extension of Activity 8QQ, except that you **should** use a model, where possible, to answer the questions. But also add the following extensions to each of the questions:

1. Also count the number and types of faces of a hexagonal prism, and also the numbers of vertices and edges. Do this again for a triangular prism (the base is a 3-sided polygon), a prism whose base is a 4-sided polygon, a prism whose base is a 17-sided polygon, and a prism whose base is a 100-sided polygon. Note that the last few you will not be able to build with the polydrons! You may want to build (or visualize) other prisms to help you understand what is going on.

Finally find the number and types of faces, and numbers of vertices and edges of a prism whose base is an  $n$ -sided polygon. Explain why your formulas are correct!

2. Also count the number and types of faces of a pentagonal pyramid, and also the numbers of vertices and edges. Do this again for a triangular pyramid (the base is a 3-sided polygon), a pyramid whose base is a 4-sided polygon, a pyramid whose base is a 17-sided polygon, and a pyramid whose base is a 100-sided polygon. Note that the last few you will not be able to build with the polydrons! You may want to build (or visualize) other pyramids to help you understand what is going on.

Finally find the number and types of faces, and numbers of vertices and edges of a pyramid whose base is an  $n$ -sided polygon. Explain why your formulas are correct!