Reasoning and Problem Solving
Reasoning about 3D Shapes

Developing
1a. Various possible answers including: a cube. The net would need 5 more squares; a square based pyramid. The net would need 4 triangles.

2a. Triangular based pyramid because it is the only shape that has a triangular face.

3a. Various possible answers, including: the triangular based pyramid because the other shapes have a square face; the cube because the other two shapes have triangular faces.

Expected
4a. Various possible answers including: a cuboid. The net would need 3 more rectangles and 2 squares; a triangular prism. The net would need 2 more rectangles and 2 triangles.

5a. Hexagonal prism because it is the only shape that has a hexagonal face.

6a. Various possible answers, including: the cube because the other shapes have rectangular faces; the cube because the other shapes have an odd number of faces.

Greater Depth
7a. Various possible answers including: a hexagonal based pyramid. The net would need 6 triangles; a hexagonal prism. The net would need an identical hexagon and 6 rectangles or squares.

8a. Various answers, for example: It could be a pentagonal based pyramid or a pentagonal prism because both shapes have a pentagonal face.

9a. Various possible answers, including: the triangular prism because it is the only shape that has different faces; the dodecahedron because it is the only shape that has more than 10 faces.

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Developing
1b. Various possible answers including: a square based pyramid. The net would need 3 more triangles and 1 square; a triangular based pyramid. The net would need 3 more triangles.

2b. The cuboid because it is the only shape that has rectangular faces.

3b. Various possible answers, including: the triangular based pyramid because the other shapes have a square face; the cuboid because the other shapes have faces with only 1 shape.

Expected
4b. Various possible answers including; a triangular based pyramid. The net would need 3 more triangles; a triangular prism. The net would need 1 more triangle and 3 rectangles.

5b. Pentagonal prism because it is the only shape that has rectangular faces.

6b. Various possible answers, including: the pentagonal prism because the other shapes are pyramids; the pentagonal prism because the other shapes have an even number of edges.

Greater Depth
7b. Various possible answers including: a dodecahedron. The net would need 11 more pentagons; a pentagonal prism. The net would need an identical pentagon and 5 rectangles or squares.

8b. Various answers, for example: It could be a square based pyramid or a tetrahedron because they both have triangular faces.

9b. Various possible answers, including: the octahedron because it is the only shape with an even number of faces; the pentagonal prism because it is the only shape that does not have a triangular face.