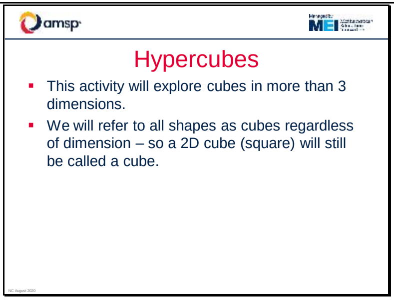
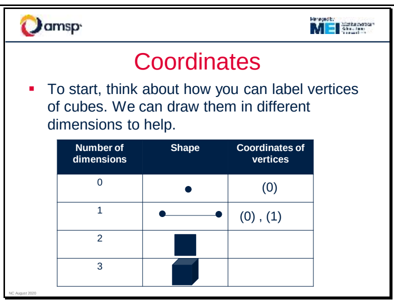
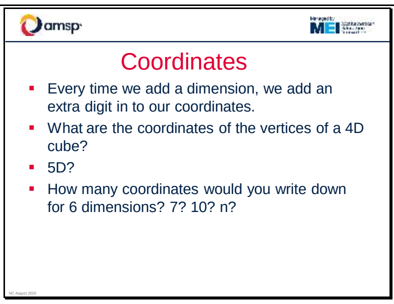
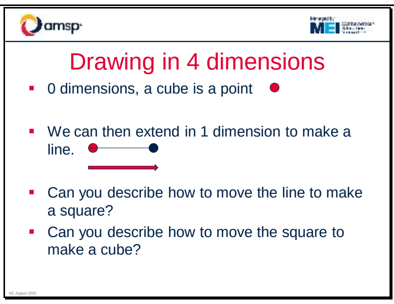
Slide 1		
Slide 2		
Slide 3		Encourage students to be systematic with the way they list their coordinates – this will help with extending to 4 and more dimensions. Encourage students to realise that when you add an extra digit, that's extending in to the new dimension, i.e. (0,1) becoming (0,1,1) is extending 1 in the new z direction.
Slide 4		When adding a new dimension, there are the set of original coordinates in the '0' position, and then slid along to the '1' position, so each dimension doubles the number of coordinates. This is a nice way to explore binomial expansion without explicitly mentioning it.
Slide 5		

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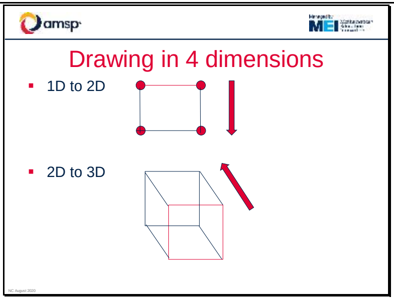
<tr><td>Slide 6</td><td>
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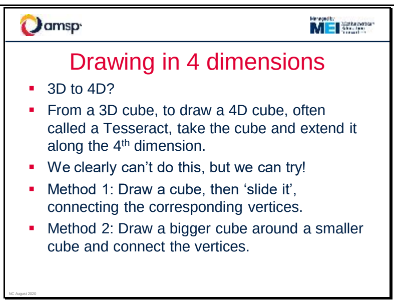
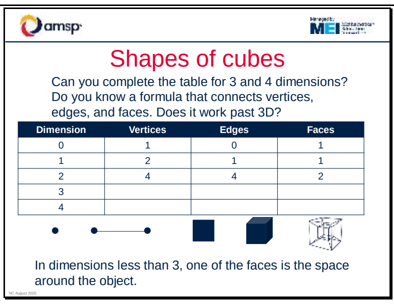
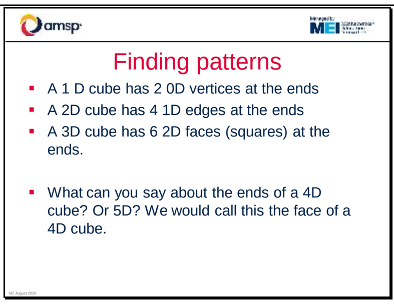
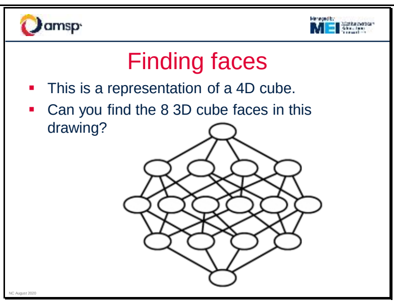
<tr><td>Slide 7</td><td>
</td><td>An example of the 'sliding' technique can be found here https://www.youtube.com/watch?v=NE9ZFDJ4Phk</td></tr>
<tr><td>Slide 8</td><td>
</td><td>Euler's polyhedra formula holds in all dimensions.</td></tr>
<tr><td>Slide 9</td><td>
</td><td>4D cubes have 8 3d cubes as faces, 5D cubes have 10 4d cubes as faces etc.</td></tr>
<tr><td>Slide 10</td><td>
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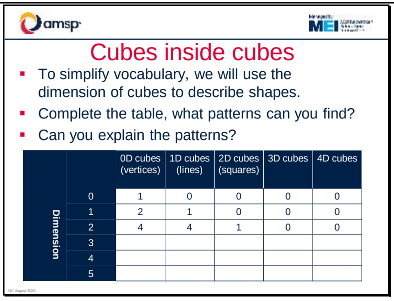
<td>
</td>
<td>Ask students to sum the number of cubes in each dimension. The pattern is 3^n. Other patterns include 1 down the leading diagonal and the number of vertices doubling.
Also each number is twice the number to the left plus the number above that one. This is how we can prove 3^n. This might be beyond most students though!</td>
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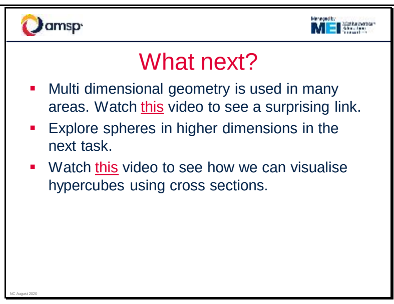
<td>Slide 12</td>
<td>
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