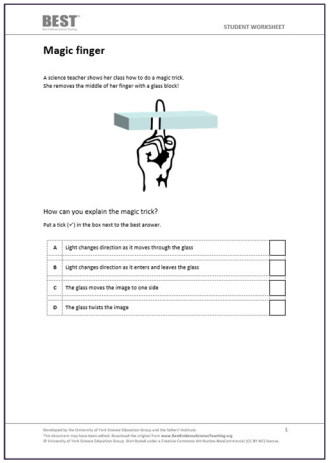
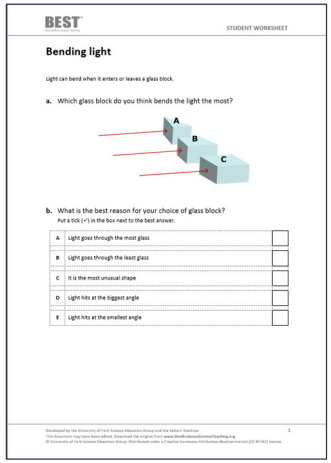
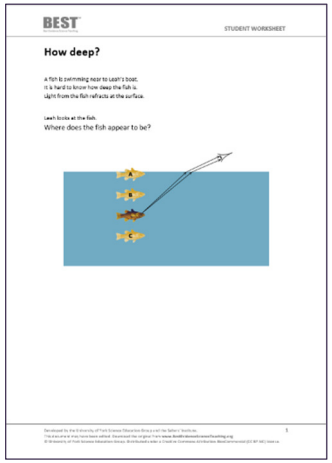
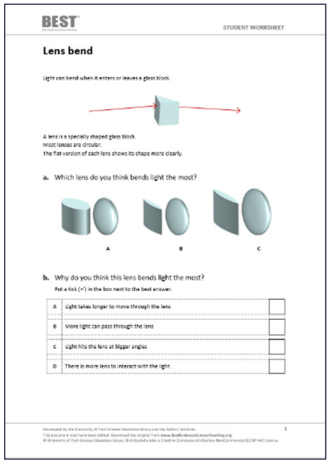
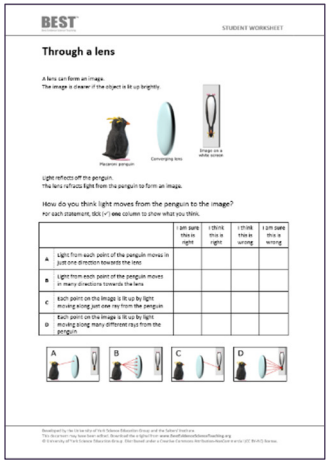
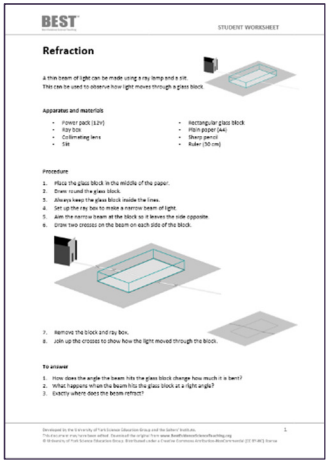
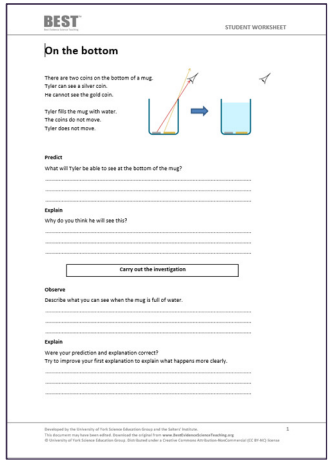
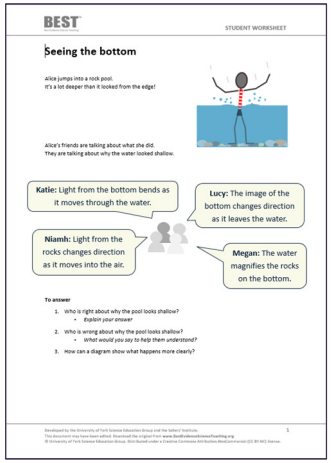
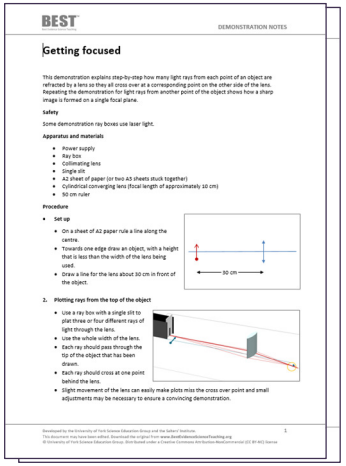
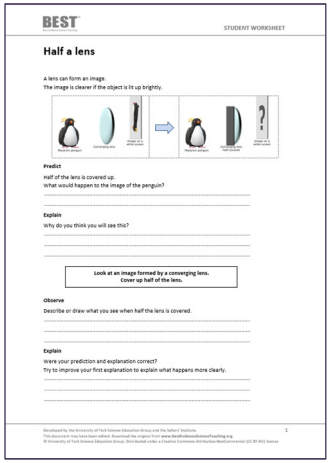
Physics > Big idea PSL: Sound, light and waves > Topic PSL3: Making images

Progression toolkit: Refraction and lenses

<table>
<tr><td>Learning focus</td><td colspan="5">All light from each point of an object that passes through a converging lens is bent (refracted) to a corresponding point in a sharp image.</td></tr>
<tr><td>As students' conceptual understanding progresses they can:</td><td colspan="5">CONCEPTUAL PROGRESSION</td></tr>
<tr><td></td><td>Recall that light can change direction (refract) when it passes across a boundary between transparent media.</td><td>Describe how the angle light passes across a boundary between two transparent media affects how much it is bent (refracted).</td><td>Explain why water can appear shallower than it really is.</td><td>Explain how the shape of a lens enables it to focus light.</td><td>Explain how light from an object can be focused by a converging lens to form a sharp image.</td></tr>
<tr><td>Diagnostic questions</td><td>Magic finger</td><td>Bending light</td><td>How deep?</td><td>Lens bend</td><td>Through a lens</td></tr>
<tr><td>Response activities</td><td colspan="2" rowspan="2">Refraction</td><td>On the bottom</td><td colspan="2">Getting focused</td></tr>
<tr><td>Seeing the bottom</td><td></td><td>Half a lens</td></tr>
</table>

Magic finger	Bending light	How deep?	Lens bend	Through a lens
				
Simple multiple choice	Two-tier multiple choice	Simple multiple choice	Two-tier multiple choice	Confidence grid
Refraction	**On the bottom**	**Seeing the bottom**	**Getting focused**	**Half a lens**
				
Clarifying - practical	Predict, explain; observe, explain	Talking heads	Clarifying - demonstration	Predict, explain; observe, explain