



BLOODHOUND ALUMINIUM DESERT WHEELS DESIGN & TECHNOLOGY CHALLENGE

– Mark Scheme –

Pupils make a poster and a video diary (3 minutes maximum length). Finalists will be invited to demonstrate their car and wheels in front of a judging panel including at least one of the BLOODHOUND Team and make a short presentation.

Teams need to demonstrate that they have covered each of the six principles of Design & Technology in their project.

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| 1. Who it is for. | <i>(User)</i> |
| 2. What it is for. | <i>(Purpose)</i> |
| 3. Does it work? | <i>(Functionality)</i> |
| 4. How did you design it? | <i>(Design decisions)</i> |
| 5. Where did you get your inspiration? | <i>(Innovation)</i> |
| 6. Could it work in real life? | <i>(Authenticity)</i> |

There is a total of **30** marks available, 5 for each of the six Design & Technology principles.

We would encourage the teams to work as independently as possible.

Please let us know how much support your team required so we can judge them fairly.



Principle:	0 marks	1-2 marks	3-4 marks	5 marks
<p>Who it is for: <i>User</i> – Pupils should have a clear idea of who they are designing and making products for, considering their needs, wants, values, interests and preferences.</p>	No evidence observed.	A simple statement made, with support.	A detailed statement made with some prompting.	All pupils can Independently and confidently state their objective. They evaluate their method and can describe how it models BLOODHOUND SSC (the Car), Hakskeen Pan (the desert runway) and the World Land Speed Record.
<p>What it's for: <i>Purpose</i> – Pupils should be able to clearly communicate the purpose of the products they are designing and making. Pupils' products should be evaluated through use.</p>	No evidence observed.	With support, the pupils' safe working is only inferred; few team members involved in the analysis discussion.	Clear evidence seen of all pupils working safely. Pupils exhibit only limited data collection. One graph used and described.	Every pupil in the group can communicate clearly and thoughtfully; explaining how their prototype wheel improves the speed of the car over the rough terrain, that they were built with an awareness of risk and work reliably. The designs are evaluated through inclusive discussion of their data.
<p>Does it work? <i>Functionality</i> – pupils should design and make products that work/function effectively in order to fulfil users' needs, wants and purposes.</p>	No evidence observed.	The method is carried out with support.	The wheels work but analysis is qualitative only.	Pupils are observed collecting data, measuring the speed of the wheels, using a straightforward and fair investigation. The wheels are seen to be observed and evaluated, with qualitative and quantitative analysis.



Principle:	0 marks	1-2 marks	3-4 marks	5 marks
<p>How did you design it? <i>Design decisions</i> – Pupils make their own design decisions. They demonstrate their creative, technical and practical expertise, and draw on learning from other subjects. They decide on the form their product will take.</p>	No evidence observed.	Pupils need support to make decisions about the best wheel designs and what to do next.	Pupils follow the design process well but struggle to describe why they made those decisions.	The iterative design process – <i>plan→design→test→evaluate→plan</i> – is clearly evident through examples of early ideas, with reasons why they were rejected. Pupils can describe problems they encountered and how they solved them.
<p>Where did you get your inspiration? <i>Innovation</i> – When designing and making, pupils need some scope to be original with their thinking. A range of design ideas and products being developed by engaging in open-ended starting points.</p>	No evidence observed.	Pupils have been directed where to research to gather ideas.	Pupils are imaginative, and work independently to research ideas.	Clear evidence of a wide range of imaginative wheel designs developed in the early stages. Pupils explore and research extensively, bringing ideas from all sorts of interesting applications before whittling their choices down collaboratively, as a team.
<p>Would it work in real life? <i>Authenticity</i> – Pupils design and make products that are believable, real and meaningful to themselves and others. Every design and technology project should include, to a greater or lesser extent, all of the D&T principles.</p>	No evidence observed.	Two or three principles described.	Wheels perform well but limited links to how it relates. Only four or five principles have been described.	Drawn designs could be reproduced into a wheel that could exist in the physical world. They can describe how their prototype wheel could be scaled up to fit a World Land Speed Record car driving over rough terrain. Pupils have planned their time (five hours) wisely to include each D&T principle.



/30 Comments and feedback:

