**Unit / Project Overview**

|  |  |  |
| --- | --- | --- |
| Curriculum Area / Skills  Skills: Attitude, self-management, communication, teamwork, compliance, initiative  Curriculum: Properties of materials (Chemistry), Energy resources/generating electricity (Physics), Forces (Physics)  Learning Outcomes  To design aspects of a train, linked to the curriculum (as above)  To develop workplace skills  To present project to employer partner | | Subject / Course: Science/Industry Projects  Teacher: Emma Brook & Vicky Smith  Class/Year group: Year 10  Number of Students: approx. 15  Start date: 6th January 2020  Length of project: 12 weeks  Additional Info |
| Driving Question  What is the most efficient design, in terms of design, materials and energy sources for a modern train? | | |
| How can the learning from the employer visit be applied to the project idea?  Students are provided with an outer perimeter and shapes to represent the stations located within the factory, to create an effective floorplan of a factory | | |
| Which Stakeholders could help deliver the project?  Hitachi Rail Limited | Foreseen Challenges / solutions?  None encountered so far, excellent employer engagement | |
| Draft activity timeline (specific delivery times / flexibility)  Week 1: Importance of projects/impact at interview  Week 2: materials testing  Week 3: Manufacturing layout  Week 4: Body design  Week 5: Prototype building  Week 6: power  Week 7: Assembly vs sub-assembly  Week 8: drive systems  Week 9: braking  Week 10-11: presentation planning | | |
| Products / outputs?  2D Drawings, 3D CAD or built prototype, floor plan of factory, practical results, A1 poster | | How will you celebrate, showcase learning with wider stakeholders?  Projects presentation morning |
| How will the work be assessed? How will you measure the impact, what are the success criteria?  Weekly review sheets, self-appraisal documentation, feedback from industry partners | | Differentiation  By outcome, some CAD designs some will be cardboard etc.  Superficial vs deep analysis of practical results  Scaffolding |
|  Is the idea clear to communicate with potential partners? Yes   Has a timeline been drafted? Yes   Have outcomes and evaluation process been agreed? Yes   Have key contacts agreed a communication strategy? Yes | | Key Contact details:  [Emma.brook@utcsouthdurham.org](mailto:Emma.brook@utcsouthdurham.org)  [Vicky.smith@utcsouthdurham.org](mailto:Vicky.smith@utcsouthdurham.org)  [Nina.harding@hitachirail.com](mailto:Nina.harding@hitachirail.com) |