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| **Scales of Production (Charity Keyrings)** | | **AGE 14-16 (vocational ability)** |
| **Objectives** | **Background** | |
| * To understand the scale of engineering production: one-off.   Demonstrated by the following outcomes:   * Produce a one-off product. | This 1 hour session is the 2nd of a unit of 10 lessons exploring scales of production, specifically one-off, batch, mass and continuous; this develops knowledge of one-off production by producing a one-off product. | |
| **The Big Questions** | **Curriculum Links** | |
| * What are scales of production? * What types of products are produced at each scale? * Why is one production scale sometimes preferable? | Pearson BTEC Level 1/Level 2 First Award in Engineering  Unit 1: The Engineered World  Learning aim A: Know about engineering processes used to produce modern engineered products  Topic A3: Scales of production  Characteristics and advantages/disadvantages of the following scales of production used in engineering manufacture:  ● one-off/jobbing production  ● batch production  ● mass production  ● continuous production. | |
| **Unit Summary** |  | |
| * This unit of work is a series of 10 lessons to allow students to develop knowledge of scales of production mainly through focused practical tasks. Students produce various key ring products as a live brief to raise money for charity (Children in Need). | | |

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| **(Title)** | **AGE 11-14** |

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| **1 Resources** | **5 Plenary** | |
| * Scales of Production 1-2 - One-off production PowerPoint * Scales of Production Student Workbook * Engineer’s Blue * Pillar Drill * Letter Punches   Per Student:   * Steel Ruler * Try-Square * Junior Hacksaw * Flat File * Metal Vice * Emery Cloth * Ball-Pein Hammer * 30x50mm mild steel sheet | *5 minutes*  As practical work has taken place students need to ensure:   * All work is stored safely and is identifiable. * All tools are returned to the correct places. * The workshop is left appropriately clean and tidy. | |
| **2 Starter** |
| 5 minutes  Students prepare to carry out their one-off manufacturing of their charity key-ring. They need to:   * Ensure all items not required are stored safely (blazers, bags, etc) * Put on PPE (apron, goggles) * Collect their own work * Select tools required |
| **3 Introduction** | **6 Follow up session** | |
| 5 minutes  Follow-up issues from previous session with any required demos for class / group / individuals. | | Students should produce an A4 sheet with details of products produced using one-off methods. Details on what the item is, how it is manufactured, costs etc. can be added as well as images. |
| **4 Activity** |  | |
| Students are to produce charity keyring as specified, including:  Shearing steel sheet to the correct size.   * Finishing edges of the steel sheet using files so they are safe. * Bluing and marking hole position. * Punching and drilling hole to correct diameter. * Marking guidelines for lettering. * Stamping lettering. | | |