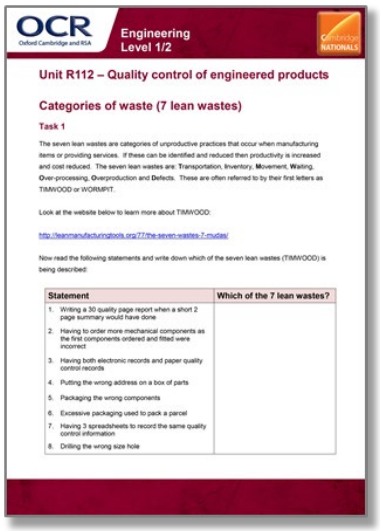
Unit R112 – Quality control of engineered products

Categories of waste (7 lean wastes)

Instructions and answers for teachers

*These instructions should accompany the OCR resource **'Categories of waste (7 lean wastes)'** activity which supports OCR Cambridge Nationals in Engineering.*


Engineering
Level 1/2
Unit R112 – Quality control of engineered products
Categories of waste (7 lean wastes)
Task 1
The seven lean wastes are categories of unproductive practices that occur when manufacturing items or providing services. If these can be identified and reduced then productivity is increased and cost reduced. The seven lean wastes are: Transportation, Inventory, Movement, Waiting, Over-processing, Overproduction and Defects. These are often referred to by their first letters as TIMWOOD or WORMPIT.
Look at the website below to learn more about TIMWOOD:
http://leanmanufacturingtools.org/77/the-seven-wastes-7-muda/
Now read the following statements and write down which of the seven lean wastes (TIMWOOD) is being described:
Statement
Which of the 7 lean wastes?
1. Writing a 30 quality page report when a short 2 page summary would have done
2. Having to order more mechanical components as the first components ordered and fitted were incorrect
3. Having both electronic records and paper quality control records
4. Putting the wrong address on a box of parts
5. Packaging the wrong components
6. Excessive packaging used to pack a parcel
7. Having 3 spreadsheets to record the same quality control information
8. Drilling the wrong size hole

The Activity:

This resource comprises of 1 task.

This activity offers an opportunity for English skills development.

Associated materials:

'Categories of waste (7 lean wastes)' activity sheet

Suggested timings:

Task 1: 1 hour

Task 1

For this activity learners are tasked to explore the seven lean wastes: **T**ransportation, **I**nventory, **M**ovement (motion), **W**aiting, **O**ver-processing, **O**verproduction and **D**efects. These are often referred to by their first letters as TIMWOOD or WORMPIT.

Learners are directed to a website that explains TIMWOOD (http://leanmanufacturingtools.org/77/the-seven-wastes-7-mudas/) although teachers might wish to use other reference material as appropriate to explain lean wastes.

Learners are then tasked to consider a number of statements and to categorise them in terms of TIMWOOD. Teachers might wish to use further examples. Solutions to the statements are shown below.

Learners are tasked to complete the activity by considering where waste occurs in their everyday activities and to categorise this in terms of TIMWOOD. Teachers might contextualise this in terms of manufacturing activities that learners are undertaking.

Statement	Which of the 7 lean wastes?
1. Writing a 30 page report when a short 2 page summary would have done	Over-processing
2. Having to order more mechanical components as the first components ordered and fitted were incorrect	Defects
3. Having both electronic records and paper quality control records	Over-processing
4. Putting the wrong address on a box of parts	Defects
5. Packaging the wrong components	Defects
6. Excessive packaging used to pack a parcel	Over-processing
7. Having 3 spreadsheets to record the same quality control information	Over-processing
8. Drilling the wrong size hole	Defects
9. Waiting for your customer to approve a design change	Waiting
10. Moving parts from department to department	Transport

Statement	Which of the 7 lean wastes?
11. Putting extra sticky tape over a self-sealing parcel	Over-processing
12. Using extra keyboard strokes when programming a machine (not using shortcuts)	Motion
13. Having to reach down to pick up a component from a storage bin	Motion
14. Holding 10 years supply of nuts and washers	Inventory
15. Receiving 200 pieces of work from the previous process when your capacity is 30 per day	Over-production
16. Hunting around the factory floor for a tool	Motion
17. Stocking every size of nut and bolt imaginable	Inventory
18. Having nuts but no bolts of the correct size in stock	Defects
19. Having to deliver electronic components to a different city	Transport
20. Making a few extra printed circuit boards	Over-production
21. Stock control barcode reader does not work	Defects
22. Having pliers, screwdrivers and cutters at your workstation	Inventory
23. Running out of steel bar	Defects
24. Order of key components has not yet arrived to complete job	Waiting
25. Using sprung washers when they are not required	Over-processing