



Managing Flow

Teacher notes



Overview:

The aim of this activity is to highlight the importance of maths skills in Logistics careers. It links directly to the Key Stage 3 and 4 Maths Curricula and supports Gatsby Benchmark 4.

This resource is not intended to last for a whole lesson. It best used as a lesson/topic starter or at the end of a lesson/topic or as a problem-solving exercise. Alternatively, it could be used as part of a carousel of activities along with 'Conveyor Belt' and 'Lorry Loading'.

The resource is intended to create discussion!

Curriculum links:

- Reasoning mathematically
- Solving problems
- Model situations mathematically
- Ratio and proportion

Suggested ways to use the resource

Discuss what students think happens in a 'fulfilment centre'? What roles do they think are involved? What problems occur whilst trying to meet/fulfill these orders?

Handout the worksheet -page 2- and remind students that their job is to decide how many employees should be allocated to each role. (Optional help sheet -page 3- included if required.)

Further ideas – try adding in a (12hr) night shift where there are only 200 employees? What would be the maximum number of orders that could be processed on that shift? In a 24 hour period? Get students to explain how they knew they had got the most efficient allocation of staff to maximise flow? Could they apply their reasoning to any number of employees? Could they write that as a formula or set of instructions?

For further maths curriculum linked careers resources visit: <https://amsp.org.uk/teachers/11-16-maths/resources/linking-curriculum-learning-to-careers/>

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Managing Flow

Redeploy the employees to maximise efficiency.

Operations Manager:

Many warehousing staff are trained in a variety of roles. This ensures maximum flexibility at the busiest times. An Operations Manager needs to make sure that items are able to be processed through the Fulfilment Centre without being held up. This is called maintaining the **flow**. Your job is to decide how many employees should be allocated to each role below, in order to maintain flow (other staff cannot be moved as their role is essential e.g. staff checking rejected items and robot operators).

List of roles:

- A. Place items arriving onto conveyor belts
- B. Stow station: Open these items, scan them and stow them onto pods
- C. Pick station: Read the screen, retrieve the correct item from the bin, place into a yellow box (called a “tote”)
- D. Pack station: Put items into boxes (recommended by computer)



Each role takes a different amount of time. Figures below state the number of items an employee can process per hour (on average) in each role:

- A. 80 items per hour
- B. 40 items per hour
- C. 16 items per hour
- D. 40 items per hour



You may assume that the 300 employees are trained in all four roles and are working a 12 hr day shift.

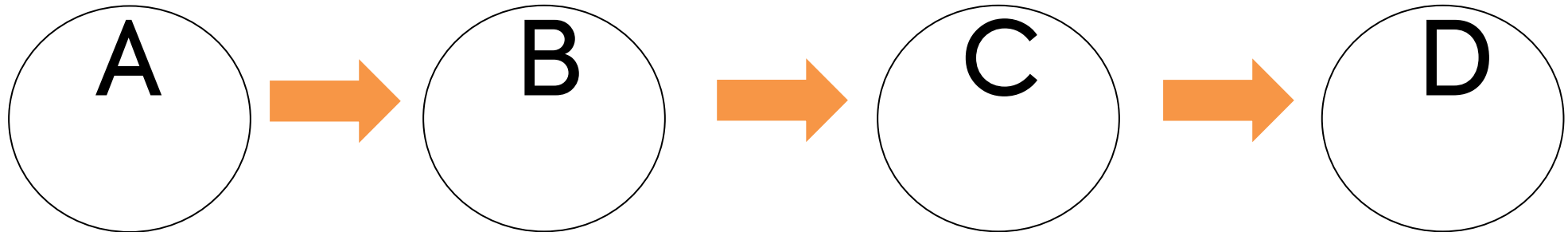
Help sheet:

Write the number of employees in each role in the circles. In the boxes below show how many items can be processed in each role. Your aim is to maximise flow!

Hint....If you are not sure where to start, why not put an equal amount of employees into each role and make alterations later?

Tip.....Use a pencil so you can change the number of employees in each role.

Think...How do you work out the total number of items processed per hour? Per shift?



Items processed per hr =

Items processed per hr =

Items processed per hr =

Items processed per hr =