Teaching The Fundamentals: Level 2 Inverse Proportion

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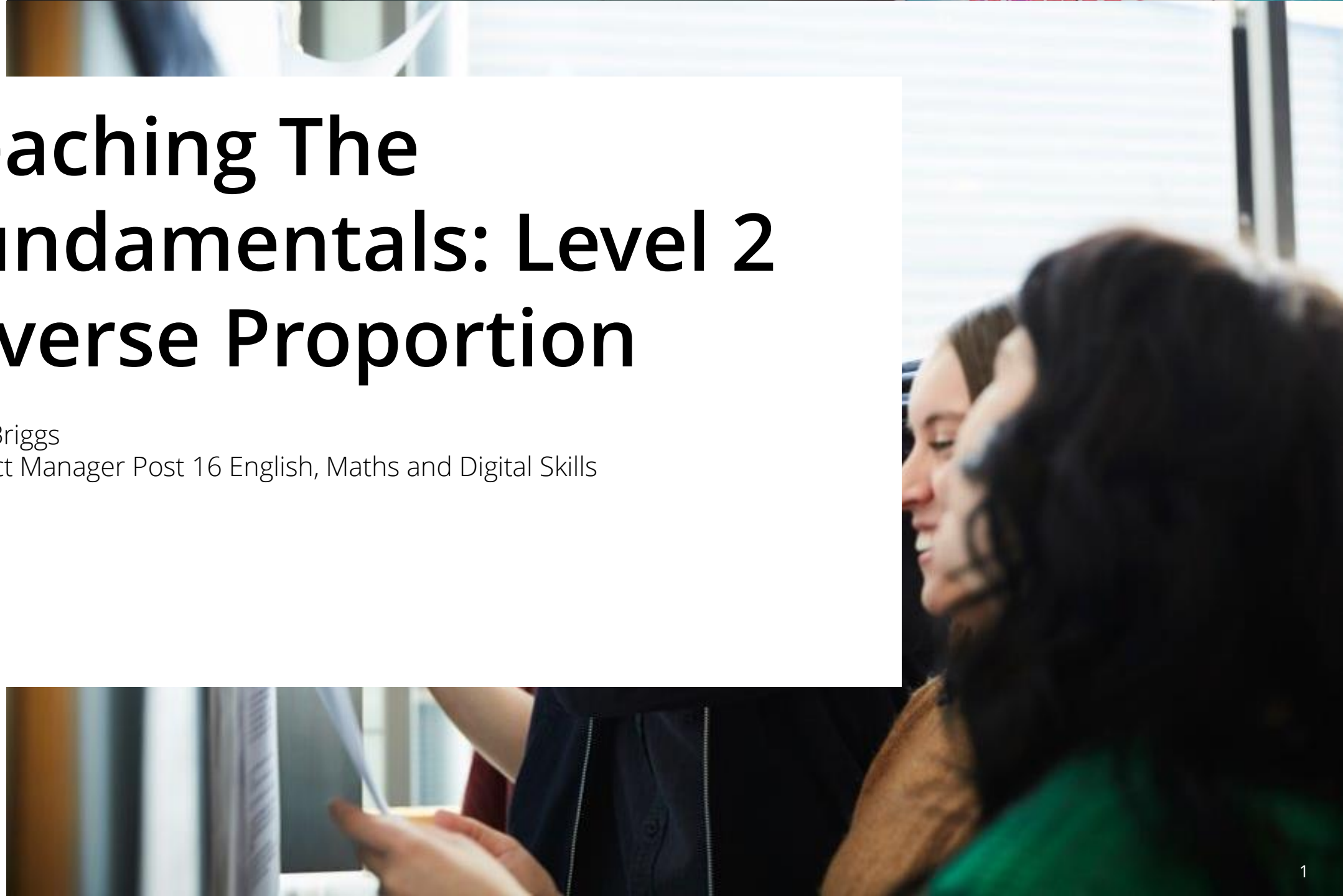

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Inverse Proportion

What does the Chief Examiner say?

- Understand and calculate using and inverse proportion is a new topic and many have found this very challenging.
- They find it difficult to distinguish between direct and inverse proportion.
- It is important that centres practice question for this type of rate question for example considering if it takes 5 people 20 hours to build a garage then a good first step is to realise 5 × 20 =100, there are 100 hours of work required to build the garage.
- This is very different to the common approach which is to do 20 ÷ 5 = 4 i.e., one person can build the garage quicker than 5 people, please encourage earners to say is this sensible? .

Inverse Proportion

Direct Proportion

- The ratio stays the same
- If it takes Sam three hours to build a wall, it will take him six hours to build two walls.

Inverse Proportion

- As one gets bigger the other gets smaller
- If it takes two people three hours to build a wall, it will take one person six hours and three people two hours

Inverse Proportion

Top Tips

- Concept checking questions:
  - Work out how long it would take for 1 person.
  - Would you expect the answer to be bigger or smaller?
- Check answers with logic ☺. Would something take a longer or shorter time if more people are doing it?
- Scaffold the question.
- Compile a list of situations where inversion proportion might be used:
  - Check-in at an airport
  - Supermarket queue
- Ask learners to write their own questions for colleagues using situations they devise.

It takes 30 minutes for passengers to be checked-in when 10 staff are working.

What is the minimum number of staff that must be working so that the time taken is 60 minutes?

a. Would you expect the answer to be bigger or smaller than 10 staff?
b. Ten members of staff are working for thirty minutes each. How much time is this in total?
c. How long would 1 member of staff take to do this?
d. How would you work out how many staff are needed?
e. How many staff are needed?

Inverse Proportion

Let's look at a question.

Jasper organises large events.

Last week 23 workers took 4 hours to build a stage for a concert.

Next week Jasper wants to hire workers to build the same stage in 3 hours.

Work out the minimum number of workers needed to complete the stage in 3 hours.

Concept check

- Is the number of workers going to be bigger or smaller than 23?
- How many hours did the first stage take to build in total? Number of workers x number of hours
- How many workers will it take to do it in 3 hours? Total hours divided by 3


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