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Topics (choose ONE):

- Primary Maths: Ratios. The idea is to get the kids to express comparative quantities in simple whole-number ratio terms such as 1:1, 1:2 and 2:5. You do not need to worry about getting them to convert those quantities into proportions in this lesson. They should, however, be able to reduce a ratio to its simplest form, e.g. 2:2 goes to 1:1. New vocab: 'ratio'.
- Primary TESOL: Contractions in which 'not' is part of the verb as the suffix 'n't' e.g. can't, don't, haven't. Assume that the kids have already come across the apostrophe in possessives; they now need to learn this other function of the apostrophe. There is no new vocab for this lesson.



### LESSON PLANNING

(1) Write three lesson objectives, in learning outcomes format, which apply to both lesson plans.

At the end of this lesson, pupils will be able to

- (i) Define the word "ratio".
- (ii) Distinguish between the simplest form of a ratio and the non-reduced form.
- (iii) Convert ratios to their simplest form.

### (2) Expository LP

(a) Write a Goal Statement for this lesson.

Today we are going to learn about ratios, a new way to compare two quantities. We will also learn how to reduce them into their simplest form.

(1 mark)



(b) Briefly outline your Presentation in the form of 5 or 6 steps:

- Put a picture of a hand. Ask how many hands? How many fingers?
- State 1 hand to 5 fingers, then define ratios and introduce their format (write 1:5)
- Put another picture with 2 hands. Ask how many hands? how many fingers?
- Ask a student to write the ratio on the board. (2:10)
- By referring to picture 1, point out that GCF between 1 and 5 is 1. State that 1:5 is in its simplest form.
- By referring to picture 2, point out that GCF between 2 and 10 is 2 (≠ 1). State that we can reduce both numbers by GCF. (3 marks) *the ratio by dividing*

(c) Write two exercises that would appear in your Practice task sheet. They must be at Bloom level 3 and be distinctly different.

(i) Match each ratio with its simplest form.

- 2:2
- 3:6
- 4:6
- 3:15
- 9:15



- 1:2
- 1:5
- 3:5
- 2:3
- 1:1



(ii) Write each ratio in its simplest form. Show your work --

18:24 = \_\_\_\_\_

3:21 = \_\_\_\_\_

7:14 = \_\_\_\_\_

9:27 = \_\_\_\_\_

*Very similar Qs*

(4 marks)

(c) Write three 'recap' questions, one for each of your objectives, in order.

(i) Who can tell me the definition of a ratio? \_\_\_\_\_

(ii) Is 2:5 in its reduced form? What about 3:9? \_\_\_\_\_

*OK, but fingers are part of hands - better might be eyes vs fingers*

(iii) what's the reduced form of 4:11? what about 2:10?



(1½ marks)

(2) Inductive approach

(a) Write a Goal Statement for this lesson.

Today we will discover a new way of comparing two fractions. We will figure out how to reduce it into its simplest form.

(1 mark)

(b) Devise an exercise at Bloom level 4 which will lead the pupils to discover the target rule.

Include a 'punchline' in which the pupils arrive at a generalisation

Fruits	Numbers
Apples	24
Bananas	12
Strawberry	7
peach	3



a) Refer to the table above to fill the blanks.

1 - The number of Bananas compared to number of Apples is:  $\underline{\quad} : \underline{\quad}$

2 - The number of peaches compared to number of strawberry is:  $\underline{\quad} : \underline{\quad}$

3 - The number of peaches compared to number of apples is  $\underline{\quad} : \underline{\quad}$

b) Find the Greatest common factor (GCF) between each two numbers in part a. What can you conclude? (5 marks)

1 -  $\underline{\quad}$

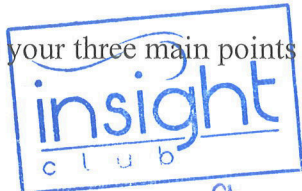
2 -  $\underline{\quad}$

3 -  $\underline{\quad}$

Write a conclusion with blanks

c) Divide each set of two number by GCF  $\underline{\quad} : \underline{\quad}$

(c) What would be your three main points of focus for the Concept Attainment phase of the lesson?



and formalize "a:b" format

- 1) Definition of ratio as a way to compare 2 quantities.
- 2) Reduced form has a GCF of 1
- 3) Divide by GCF to get the reduced form. (1½ marks)

(d) Point out problems that may arise when teaching this lesson inductively, and how teachers should deal with them.



~~Students may not discover the GCF is 12.~~  
~~like 12:24~~  
~~Students might think it's 2 or 6.~~

1 - Students may not remember the GCF. Teachers should start the lesson by reminding them of GCF of two numbers.

2 - Students may be confused with fractions when they get the GCF and divide by it. Teachers in this case should focus on the format of ratios

$\frac{\text{numerator}}{\text{denominator}}$  and compare it to the format of fractions to let the students distinguish between both. *also misconception that  $x/y = x \div y$  (right, see below)*

~~Students may write the number before or after. Like 24:12 instead of 12:24. Teachers should remind students that we are comparing two quantities so it doesn't matter the order of numbers. Flipping numbers will keep the concept the same.~~

3 - Students may think that  $\frac{\text{numerator}}{\text{denominator}}$ . Teachers should remind students that we are just comparing two quantities and flipping both numbers keeps the ~~format~~ the same 24:12 or 12:24.

*better to avoid idea fractions altogether in this lesson*

(5 marks)  
 24 apples and 12 bananas is similar to 12 bananas and 24 apples.