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| **Lesson(s)** | **Prior Knowledge** (Main Lesson) |
| **Starter**: (Mental/Oral)  LO: To use mathematical language to find numbers.    Find all the prime numbers  Find a multiple of 7  Find a multiple of 6 and 8  Find a cube number  Find a multiple of 4 from two square numbers  ~ ~ ~ ~ ~  **Main Development**:  **Key Learning Objectives:**  To recognise and use factors.  **DEVELOPING STAGE:**  Discuss with your talk partner:  What is a **factor?**  *[Factoring is like taking a number apart. It* ***means*** *to express a number as the product of its* ***factors****.* ***Factors*** *are either composite numbers or prime numbers (except that 0 and 1 are neither prime nor composite)].*  What **prior knowledge** do you need to know? [times table facts]  What are the **factors** of…  6 -> 1, 2, 3 & 6  12 -> 1, 2, 3, 4,6 & 12  48 -> 1, 2, 3, 4, 6, 8, 12, 16, 24 & 48  (These could be expressed pictorially through ‘factor bugs’.)     |  | | --- | | x3 x7  [Image result for venn diagram](about:blank) |   Put these numbers in the correct places: **28 12 2 21**    **Mini-Plenary**  Discuss: An alien has landed on Planet Earth – complete the statement: ***A factor is…*** | **Success Criteria:**   * I can identify prime numbers; * I can identify factors of numbers; * I can apply my knowledge of times tables facts.   **Key Vocabulary:**  factors, highest common factors (HCF), lowest common multiples (LCM), equivalent fractions, prime factors, prime numbers, composite numbers, prime decomposition |
| **Activity** | **Resources** |
| **FLUENCY STAGE:**  Discuss: What are the **common factors**:  48 -> 1, **2**, 3, **4**, 6, **8**, 12, **16**, 24 & 48  80 -> 1, **2**, **4**, 5, **8**, 10, **16**, 20, 40 & 80  Common factors of 48 & 80 are **2, 4, 8 & 16.**  Therefore the **HCF** is **16**.  Discuss: What are the **common factors** of 60 and 90?  Do all numbers have **factors**? Which ones do not? Why?  Will there always be a **HCF** for two numbers? Why?  **Mini-Plenary**  Discuss: Are all factors even? Why?   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  | x1 | x2 | x3 | x4 | x5 | | x1 |  |  |  |  |  | | x2 |  |  |  |  |  | | x3 |  |  |  |  |  | | x4 |  |  |  |  |  | | x5 |  |  |  |  |  |   Write on the grid the missing numbers 8, 10 and 15.  What are these numbers?  Discuss: What are **prime numbers**?   * A prime number only has two factors; 1 and itself. * Can you give some examples of prime numbers?   [2, 3, 5, 7, 11, 13, 17, 19 etc.}  What is significant about the number 2?  [only even number with 2 factors]  Why is this the case?  [every other even number is also a multiple of 2 and will have more than 2 factors]  What are **prime factors?**        [Related image](about:blank)**Extension:**    **REASONING STAGE:**              **Mini-Plenary**  Discuss: What have we learnt about HCF, LCM & Prime Factors?  ~ ~ ~ ~ ~  **PROBLEM SOLVING STAGE**  See next 2 pages  ~ ~ ~ ~ ~ |  |

**PROBLEM SOLVING STAGE - Factors: Expected**

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**PROBLEM SOLVING STAGE - Factors: Greater Depth**

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