

LI to select numbers from a table and multiply them.

| Success Criteria  | Self-assess |
|---|-------------|
| I can find the numbers I need in the table.                 |             |
| I can multiply them correctly.                              |             |
| I can say what my answer means in the real-world situation. |             |

## River Health



Olivia is a scientist who studies rivers. She is investigating how healthy two rivers are by looking at the invertebrates living in them.

Each invertebrate is given a score based on how well it can survive pollution

- **Animals that live only in clean water = high score**
- **Animals that can live in dirty, polluted water = low score**

Now, let's use the table to work out how healthy the river is:








- 1) **Multiply:** Take each animal's pollution score and multiply it by how many were found.
- 2) **Write it down:** Fill in the last column with your answers.
- 3) **Add it up:** Add up all the numbers in the number found column and in the last column.
- 4) **Match your answer** to the water quality scale below to see how healthy or unhealthy the river is.

**Water Quality scale:**

|               |           |         |          |         |           |
|---------------|-----------|---------|----------|---------|-----------|
| River Health  | 0 – 1.9   | 2 – 3.9 | 4 – 5.9  | 6 – 7.9 | 8-10      |
| Water Quality | Very Poor | Poor    | Moderate | Good    | Very Good |

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## River Nith

| Invertebrate   | Pollution score | Number found in River | Total                |
|--|-----------------|-----------------------|----------------------|
| Freshwater Shrimp<br> | 4               | 260                   | <b>4 x 260= 1040</b> |
| Snail<br>             | 3               | 214                   |                      |
| Worm<br>              | 1               | 462                   |                      |
| Pond skaters<br>     | 5               | 201                   |                      |
| Water boatman<br>   | 5               | 64                    |                      |
| Leech<br>           | 3               | 289                   |                      |
| Water louse<br>     | 3               | 202                   |                      |
|  | <b>Total</b>    |                       |                      |

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### Now, let's work out the river's health score

1) Add up all the **"Number Found"** to get the total animals =

2) Add up all the **"Total Scores"** from the last column =

3) Divide the total score by the total number of animals for **River Health Score** =

"Now check the Water Quality scale! Match your score to see how clean or dirty the water is!"





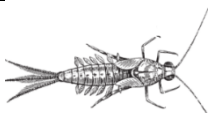



4. What is the river Nith's Water Quality score? =

### Compare with the River Dee

Repeat the same steps for the River Dee table

#### River Dee







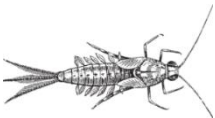
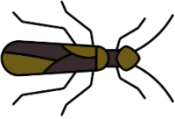
| Invertebrate   | Pollution score | Number found in river | Total |
|--|-----------------|-----------------------|-------|
| Beetle<br>              | 5.2             | 148                   |       |
| Freshwater shrimp<br>   | 4.5             | 150                   |       |
| Water boatman<br>       | 5.6             | 162                   |       |
| Limpet<br>              | 8.2             | 65                    |       |
| Mayfly larvae<br>       | 8.5             | 48                    |       |
| Freshwater Crayfish<br> | 9.8             | 34                    |       |
|  | <b>Total</b>    |                       |       |

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1. What is the river health score? (Remember: divide the total score by the total number of animals) =

2. What is the water quality value? (use the scale above) =

### Upper Urr River

| Invertebrate  | Pollution score | Number found in river | Total |
|---|-----------------|-----------------------|-------|
| Freshwater shrimp<br>        | 6.5             | 15                    |       |
| Beetle<br>                   | 4.5             | 36                    |       |
| Water boatman<br>           | 5.6             | 28                    |       |
| Dragonfly larvae<br>       | 9.1             | 362                   |       |
| Limpet<br>                 | 7.6             | 286                   |       |
| Cased caddisfly larvae<br> | 5.8             | 101                   |       |
| Mayfly larvae<br>          | 9.7             | 222                   |       |
| Stonefly larvae<br>        | 10.2            | 434                   |       |
|   | <b>Total</b>    |                       |       |

LI to select numbers from a table and multiply them.

1. What is the river health score? (Remember: divide the total score by the total number of animals) =

2. What is the water quality value? (use the scale above) =



3. The healthiest river =