## Multiple Mirrors

$$
\begin{gathered}
\text { You need } \begin{array}{l}
\boldsymbol{\searrow} \text { photocopies of a blank multiplication array } \\
\boldsymbol{\nabla} \text { a classmate }
\end{array}
\end{gathered}
$$

## Activity

In this multiplication array, the answers with a ones digit of eight are shaded:

| $x$ | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| :---: | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 1 |  |  |  |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |  |  |  |
| 4 |  |  |  |  |  |  |  |  |  |
| 5 |  |  |  |  |  |  |  |  |  |
| 6 |  |  |  |  |  |  |  |  |  |
| 7 |  |  |  |  |  |  |  |  |  |
| 8 |  |  |  |  |  |  |  |  |  |
| 9 |  |  |  |  |  |  |  |  |  |

In this multiplication array, the answers with a ones digit of two are shaded:

| $x$ | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| :---: | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 1 |  |  |  |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |  |  |  |
| 4 |  |  |  |  |  |  |  |  |  |
| 5 |  |  |  |  |  |  |  |  |  |
| 6 |  |  |  |  |  |  |  |  |  |
| 7 |  |  |  |  |  |  |  |  |  |
| 8 |  |  |  |  |  |  |  |  |  |
| 9 |  |  |  |  |  |  |  |  |  |

a. What symmetrical pattern can you see in each array?
b. Why does this happen?
a. Use one array to shade the answers that have either eight as their ones digit or two as their ones digit.
b. What patterns do you see?
a. Starting with a new array each time, shade in the answers that have the following ones digits:
i. one and nine
ii. three and seven
iii. six and four
iv. five and zero.
b. Discuss the patterns you see with a classmate.

