Searching ordered cards

Task . Binary search for a card

Start by getting into groups of 2 or 3 people. Follow the instructions below, filling in the table each time you perform a binary search. You can only turn over **one** card at a time.

1. Take 10 cards and choose a card to search for
2. Put the cards in order from lowest to highest
3. Place 8 of the 10 cards face down in a single row without looking at them
4. Perform a binary search for your chosen card and fill in the table

**Run 1:** What card are you searching for?

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| --- |

|  | **Card at that position** | **Card found?** |
| --- | --- | --- |
| **Position \_** |  |  |
| **Position \_** |  |  |
| **Position \_** |  |  |
| **Position \_** |  |  |

**Run 2:** What card are you searching for?

|  |
| --- |

|  | **Card at that position** | **Card found?** |
| --- | --- | --- |
| **Position \_** |  |  |
| **Position \_** |  |  |
| **Position \_** |  |  |
| **Position \_** |  |  |

**Run 3:** For the final run, search for one of the cards that you have removed from the set of cards.

What card are you searching for?

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| --- |

|  | **Card at that position** | **Card found?** |
| --- | --- | --- |
| **Position \_** |  |  |
| **Position \_** |  |  |
| **Position \_** |  |  |
| **Position \_** |  |  |

How many cards did you have to look at to work out that it wasn’t in the set of cards?

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