COUNTDOWN Challenge

Binary Sequence Cards

In the mid-1700's, an engineer named Joseph-Marie Jacquard pioneered the use of punch cards in looms to create complicated patterns in textiles. In the early to mid-1800's, mathematician Charles Babbage envisioned a machine that used such punch cards to compute operations.

Punch cards are used to record binary sequences. Study the pattern we started below and complete the table.

| 1 | 1 | 0000 |
|----|-------|-------------------------------------|
| 2 | 2 | $\circ \circ \circ \bullet \circ$ |
| 3 | 2+1 | $\circ \circ \circ \bullet \bullet$ |
| 4 | 4 | $\circ \circ \bullet \circ \circ$ |
| 5 | 4+1 | $\circ \circ \bullet \circ \bullet$ |
| 6 | 4+2 | 00000 |
| 7 | 4+2+1 | 00000 |
| 8 | | 00000 |
| 9 | | 00000 |
| 10 | | 00000 |
| 11 | | 00000 |
| 12 | | 00000 |
| 13 | | 00000 |
| 14 | | 00000 |
| 15 | | 00000 |
| 16 | | 00000 |
| 17 | | 00000 |
| 18 | | 00000 |
| 19 | | 00000 |
| 20 | | 00000 |
| 21 | | 00000 |
| 22 | | 00000 |
| 23 | | 00000 |
| 24 | | 00000 |
| 25 | | 00000 |
| 26 | | 00000 |
| 27 | | 00000 |
| 28 | | 00000 |
| 29 | | 00000 |
| 30 | | 00000 |
| | | |