|  |  |  |  |
| --- | --- | --- | --- |
| **Extending Patterns to Solve Problems** | | | |
| Determines the pattern rule.  5, 10, 15, 20, 25, 30, 35, 40  “The term numbers are consecutive multiples of 5.” | Uses pattern rule to determine missing values.      “The pattern rule for the term numbers is: Skip count by 5s.  So, the missing term is 20. The pattern rule for the term values is: Multiply the term number by 3, then add 1. The missing term values are:  15 × 3 + 1 = 46 and 30 × 3 + 1 = 91.” | Extends patterns using mathematical expressions.    “I can use the expression 3*n* + 2 to extend the pattern, where *n* represents the term number.  The seventh and eighth terms would be 3 × 7 + 2 = 23 and  3 × 8 + 2 = 26.” | Flexibly describes and solves problems using mathematical expressions and properties.  Zac earned $504 to buy games for a children’s hospital.  Each game costs $64.  How many games can Zac buy?    “Expression for money spent ($) is 64*v*, where *v* is the number of games bought. The money left over, in dollars, is: 504 – (the money spent) = 504 – 64*v*. Zac can buy 7 games and have $56 left over.” |
| **Observations/Documentation** | | | |
|  |  |  |  |

|  |  |  |
| --- | --- | --- |
| **Number Pattern Relationships** | | |
| Recognizes pattern relationships in repeating, increasing, and decreasing patterns.    “I see a relationship that shows skip-counting backward by 3. The rule is: Start with 20 tiles and take away 3 tiles each time.” | Identifies and describes linear and non-linear patterns in tables, charts, and graphs.    “The graph shows a non-linear increasing pattern. The points do not lie on a straight line, and a different number is added to the term value each time.” | Creates and translates repeating, increasing, and decreasing patterns using various representations.    “Each of these representations shows a linear pattern that follows the pattern rule: Start at 20 and subtract 3 each time.” |
| **Observations/Documentation** | | |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| **Number Pattern Relationships (cont’d)** | | |
| Creates and translates repeating, increasing, and decreasing patterns and describes them using algebraic expressions and equations.    “I created this increasing pattern. An expression for the term values is: 3*n* + 2, where *n* is the term number. An equation for this pattern is:  *v* = 3*n* + 2, where *v* is the term value.” | Describes patterns to show relationships among whole numbers and decimals with tenths, hundredths, and thousandths.    “As the number that is subtracted decreases by 0.001, the difference increases by 0.001.” | Fluently identifies and describes linear and non-linear patterns and justifies choice of representation to show pattern relationships.  Students raised $180 to buy 8 games that cost $26 each. Do they have enough money?    “This is a linear pattern where $26 dollars is added each time. I used the equation *c* = 26*n* to determine the cost of *n* games in dollars, where  *n* = 8: *c* = 26 × 8, which is $208. There is not enough money to buy games for 8 classes.  Only 6 classes can have a game.” |
| **Observations/Documentation** | | |
|  |  |  |