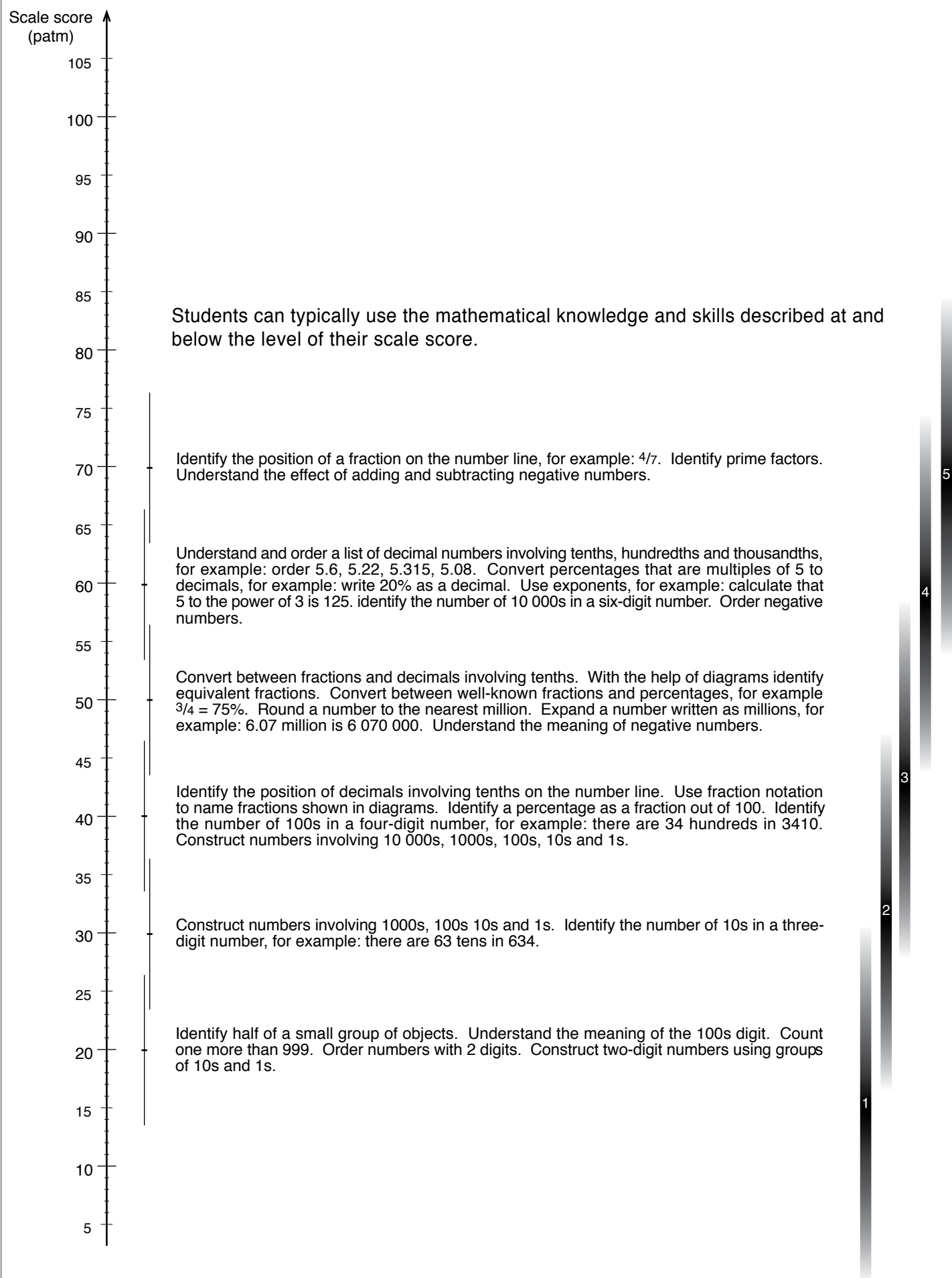
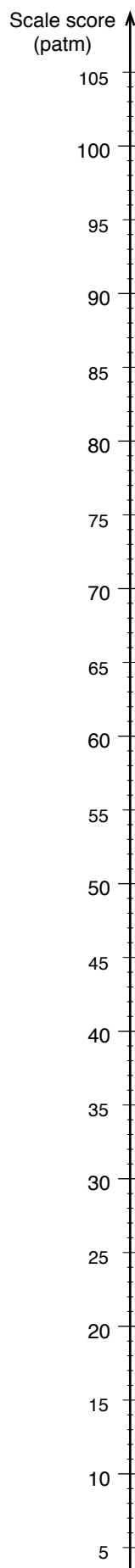


12 Scale descriptor reports

Number Knowledge



Number Strategies



Students can typically use the mathematical knowledge and skills described at and below the level of their scale score.

Estimate the result of adding fractions with different denominators, for example: $\frac{11}{12} + \frac{7}{8}$. Estimate the result of finding a non-unit fraction of a whole, for example: estimate $\frac{3}{19}$ of 60. Calculate 100% when given a lesser percentage, for example: if 75% is 24, find 100%. Compare ratios and rates using a range of flexible strategies.

Convert fractions with denominators related to 100 to percentages. Solve percentage problems involving multiples of 5 percent, for example: discount an amount by 10% and find 15% of a whole. Recognise the proper use of estimation in an addition task. Solve problems involving operations with larger numbers, for example: $80\,874 - 21\,200$.

Solve multiplication and division problems requiring a range of flexible part-whole strategies, for example: $92 \div 6$ and 27×13 . Solve addition and subtraction problems involving three- and four-digit numbers. Solve addition and subtraction problems involving decimal numbers, for example: $7.6 + 11.8$. Identify and use direct multiplicative relationships to solve problems involving fractions, ratios and proportions, for example: if 3 boxes cost \$12, how much will 9 boxes cost? Solve subtraction problems requiring part-whole strategies, for example: $85 - 28$. Find a unit fraction amount of a whole, for example: $\frac{1}{3}$ of 90.

Find 50% of a given whole. Solve simple multiplication and division problems involving known multiplication facts, for example: $35 \div 7$. Solve addition problems that require advanced mental strategies, for example: $38 + 46 + 29$. Solve simple subtraction problems involving bridging 10s, for example: $95 - 72$.

Solve simple multiplication problems, for example: 32×3 . Complete addition problems where knowledge of part-whole strategies leads to more efficient methods, for example: $27 + 25$. Use halving and quartering.

Complete simple additions and subtractions where counting-on strategies are efficient, for example: $12 + 5 + 11$. Identify $\frac{1}{2}$ of a group of objects.

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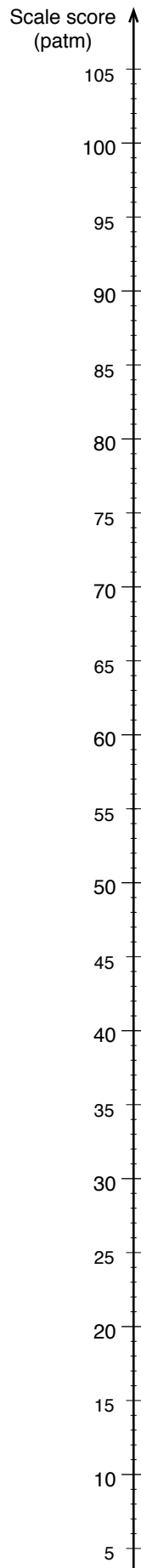
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Algebra



Students can typically use the mathematical knowledge and skills described at and below the level of their scale score.

Identify and use simultaneous relationships to solve a word problem. Identify an algebraic expression that describes a relationship in a spatial or number pattern. Identify a distance time graph that matches a described journey. Extend a spatial pattern involving a linear relationship, for example: find the tenth element of 5, 8, 11, 14 Solve an equation using division to undo multiplication.

Use the gradient of a graph with an intercept of 0 to calculate a rate or predict an unknown value. Calculate the difference in distance travelled for points shown on a distance time graph. Solve a simple algebraic equation, for example: $3x + 6 = 21$. Use an additive or direct multiplicative relationship to extend a pattern, for example: find the tenth element in 5, 10, 15 Show an understanding of the equals sign. Identify an algebraic expression that describes a linear relationship in a word problem. Plot a relationship between two variables, for example: colour and weight.

Identify an equation that shows how subtraction can undo addition. Solve for an unknown in an additive equation, for example: $\square - 57 = 94$. Use addition and subtraction to identify the next number in a sequence, for example: 940, 820, 700, 580

Use doubling to continue a sequence of numbers.

Find unknowns in simple equations involving addition, for example: $35 + \square = 45$. Find the next number in a pattern where simple counting strategies are efficient. Recognise the effect of adding zero to a number.

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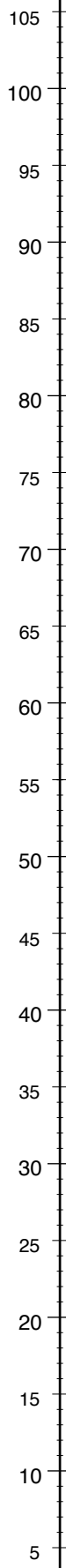
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Geometry and Measurement

Scale score
(patm)



Students can typically use the mathematical knowledge and skills described at and below the level of their scale score.

Use knowledge of shapes and angle properties to identify the size of missing angles. Identify and express rotations in degrees, for example: identify a $\frac{1}{3}$ rotation as 120 degrees. Enlarge a shape by a given scale factor. Recognise the fractional scale factor needed for a reduction. Find the area of a rectangle given its width and perimeter. Identify how several faces on a net will be related to each other when the net is folded.

Identify the centre of rotation. Use fraction notation to describe a rotation. Read a point on a scale with five intervals between each label. Identify a missing angle in a triangle or in a right angle. Recognise instances of angles greater than 90 but less than 180 degrees. Identify an accurate definition of volume. Recognise that angles stay the same under enlargement. Convert between metres and centimetres, for example: add 12 cm and 63 mm. Reflect an object, making sure all internal orientations are preserved.

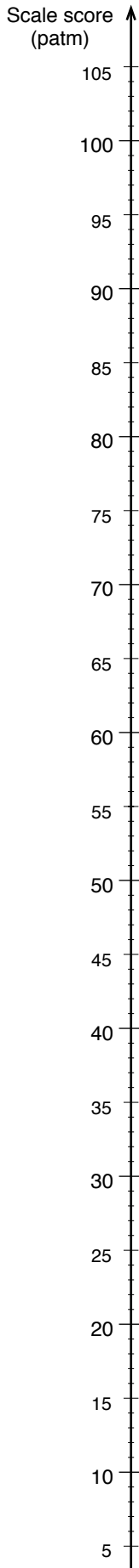
Identify the image produced when a simple shape is reflected in a mirror line. Rotate an object, making sure that internal orientations are preserved. Read a point on a scale one-quarter of the way between labelled marks. Solve problems involving time calculations. Equate times shown in 24-hour and 12-hour formats. Calculate areas of shapes drawn on a grid. Calculate the volume of cuboids. Convert between grams and kilograms, for example: 4.5 kg is 4500 g. Identify how two faces on a net will be related when the net is folded.

Read a point halfway between labelled marks on a scale. Read and compare times shown on analogue and digital clocks. Use a scale to identify a horizontal or vertical distance on a grid, for example: when given the scale 1 square = 5 km. Use a unit shape to cover a shown rectangular area.

Identify examples of left, right and clockwise turns. Choose an appropriate metric unit to measure a short length. Read a point on a scale halfway between consecutive numbers. Calculate differences between hourly times, for example: the amount of time between 10:00 am and 2:00 pm. Identify which shape can be made from a simple net. Name 2-D and 3-D shapes, for example: recognise cylinders and hexagons. Use compass points to determine direction.

Read a point on a scale marked in whole units. Identify a fold that can be used to divide a simple shape into two matching parts. Read a clock showing the time at the half-hour or hour. Identify instances of simple 2-D shapes.

Statistics



Students can typically use the mathematical knowledge and skills described at and below the level of their scale score.

Use graphs and tables involving more than one variable, for example: read a stacked bar graph. Use understandings of how to compute the mean. Identify a description detailing how data displayed on a graph are distributed. Identify the fraction of the data represented by a bar on a graph or a category in a table. Identify the population of interest when making decisions about fair sampling techniques.

Work with pre-segmented pie charts to display data. Find the range of data defined by using both of the terms “more than” and “less than” within a frequency table. Identify probabilities as equal when the fractions used to represent them are equivalent. Identify a general trend in a scatter plot. Show an understanding of the mean. Work with grouped data in a histogram or frequency table. Identify appropriate techniques to obtain fair samples.

Read a pictograph where each picture represents more than one item. Use fraction notation to describe the probabilities of different outcomes in simple situations. Identify which category contains a datapoint in a histogram or frequency table. Find all possible outcomes for a simple sequence of events. Use a basic understanding of the mean, for example: identify the effect on the mean of adding high-or low-value data points. Identify an appropriate question for a survey.

Identify which pie graph matches a given bar chart. Read points on a line graph. Use expressions such as good chance, even chance, bad chance and no chance to describe simple probabilities.

Make comparisons between categories shown on simple bar charts and pictograms, and in tables. Identify which bar graph represents the data recorded in a tally chart. Recognise equally likely events.

Recognise what number a bar represents on a bar chart. Read a simple tally chart. Find the most common element in a list of objects.