**Task 45 – Twisted Building**

**Information about the task**

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| **Question** | **Level of difficulty** | **National curriculum mathematical context** | **Text type** | **Question types** |
| 45. Twisted Building | Trial:  High (Q45.1)  High (Q45.2)  High (Q45.3)  High (Q45.4) | Shape, understand and use position and movement, understand and use measures, area, estimation, analyse and interpret data, scale. | Longer length continuous text with pictures and diagrams to interpret. | Multiple choice, calculation with longer length written justification and explanation, diagrammatical representation of ideas. |

**Skills assessed by the task**

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| **Thinking skills** | **Literacy & communication skills** |
| **Plan**   * Asking questions * Activating prior skills, knowledge and understanding * Gathering information   **Develop**   * Generating and developing ideas * Thinking about cause and effect and making inferences * Thinking logically and seeking patterns * Considering evidence, information and ideas   **Reflect**   * Reviewing outcomes and success criteria * Reviewing the process/method * Evaluate own learning and thinking * Linking and lateral thinking | **Reading**   * Locating, selecting and using information using reading strategies * Responding to what has been read   **Writing**   * Organising ideas and information   **Wider communication skills**   * Communicating information |
| **Numeracy Skills** |
| **Using mathematical information**   * Using numbers * Gathering information   **Calculate**   * Using the number system * Using a variety of methods   **Interpret & present findings**   * Comparing data * Recording and interpreting data and presenting findings |

**Scoring**

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| Twisted building SCORING 45.1  Full credit: Accept answers from 50 to 90 metres if a correct explanation is given.  *•* One floor of the building has a height of about 2.5 meters. There is some extra room between floors. Therefore an estimate is 21 x 3 = 63 metres.  *•* Allow 4 m for each story, so 20 of these gives 80 m, plus 10 m for the ground floor, so a total of 90 m.  Partial credit: Correct calculation method and explanation, but using 20 stories instead of 21.  *•* Each apartment could be 3.5 metres high, 20 stories of 3.5 metres gives a total height of 70 m.  No credit:  - Other responses, including answer without any explanation, answers with other incorrect number of floors, and answers with unreasonable estimates of the height of each floor (4 m would be the upper limit).  *•* Each floor is around 5 m high, so 5 x 21 equals 105 metres.  *•* 60 m.  - Missing.  To answer the question correctly students have to draw on skills from the connections competency cluster. |
| Twisted building SCORING 45.2  Full credit: C. From the East.  No credit: Other responses and missing.  To answer the question correctly students have to draw on skills from the connections competency cluster. |
| Twisted building SCORING 45.3  Full credit: D. From the South East.  No credit: Other responses and missing.  To answer the question correctly students have to draw on skills from the connections competency cluster. |
| Twisted building SCORING 45.4  Full credit: A correct drawing, meaning correct rotation point and anti-clockwise rotation. Accept angles from 40° to 50°.    Partial credit: One of the rotation angle, the rotation point, or the rotation direction incorrect.  No credit: Other responses and missing.  To answer the question correctly students have to draw on skills from the connections competency cluster. |