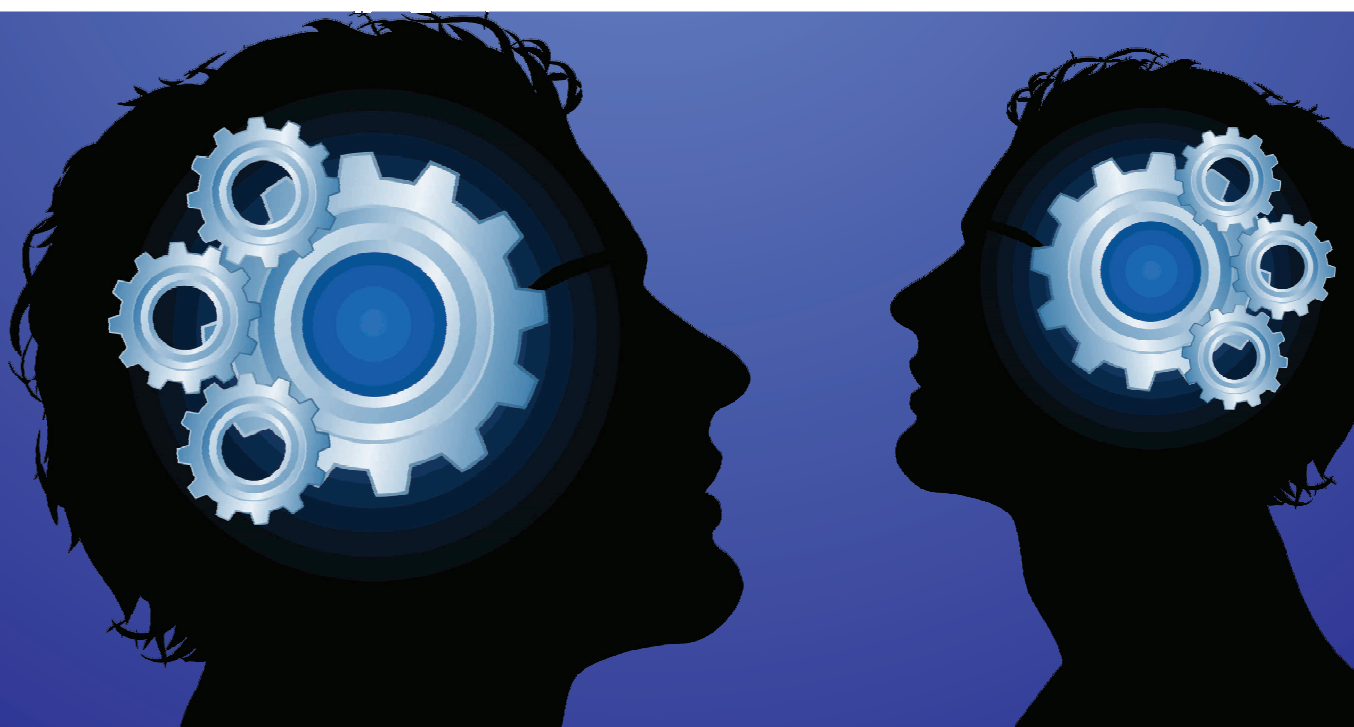


Junior  
Certificate  
School  
Programme



# Arrow Sums

Student Workbook 1



An Roinn Oideachais  
agus Scileanna  
Department of  
Education and Skills

**PDST**  
Professional Development  
Service for Teachers | An tSeirbhís um Fhorbairt  
Ghairmiúil do Mhúinteoirí



Junior  
Certificate  
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# ARROW SUMS STUDENT WORKBOOK

**Reprinted in 2013 by**

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## **Introduction**

**“Arrow Sums, Student Workbook 1” contains a suite of forty arithmetical challenges. In each “Arrow Sum”, the student is provided with a gateway number and he /she has to work his / her way from the base to the tip of the arrow, following the computational instructions that are provided along the way, to discover the missing answer at the tip of the arrow.**

**Each “Arrow Sum” activity can be planned and implemented as a timed-activity where each participating student is given 40 seconds to complete the challenge. This time-frame can be extended or reduced to cater for the ability level and work-rate of the individual student.**

**These number challenges can be planned and implemented to incorporate a combination of mental activity and written activity. Alternatively, the challenges can be organised as activities involving the use of a calculator. A shorter time-frame may be allocated to a student who employs a calculator to perform all the calculations.**

**These timed number challenges are based on the following numerical concepts, skills and competencies:**

- **whole number computation (addition, subtraction, multiplication, division)**
- **computation involving fractions**
- **computation involving decimals**
- **computation involving percentages.**

**“Arrow Sums” are an exciting way to revise, practise and consolidate important computational skills and to enhance numerical understanding in important conceptual domains.**

**Each “Arrow Sum” challenge can be implemented as an individual activity, where each student works independently. The number challenges can also be operated as collaborative assignments where two (or more) students work together to solve the puzzles.**

**Solutions to the number puzzles are provided in the appendix section (beginning on page 44).**

**Gateway Number: 5**

**Q1**

**Double it**

**Add 3**

**Double it**

**Take away 4**

**Get 50% of  
this number**

**My Answer:**

**Gateway Number: 6**

**Q2**

**Treble it**

**Add 9**

**Times 2**

**Add 10**

**Take away 16**

**My Answer:**

**Gateway Number: 7**

**Q3**

**Double it**

**Add 11**

**Times 3**

**Take away 5**

**Get 50% of  
this number**

**My Answer:**

**Gateway Number: 8**

**Q4**

**Treble it**

**Add 17**

**Times 3**

**Take away 3**

**Double it**

**My Answer:**



**Gateway Number: 11**

**Q5**

**Double it**

**Add 8**

**Times 5**

**Take away 10**

**Get 50% of  
this number**

**My Answer:**

**Gateway Number: 9**

**Q6**

**Treble it**

**Add 11**

**Times 2**

**Take away 3**

**Double it**

**My Answer:**

**Gateway Number: 12**

**Q7**

**Double it**

**Add 5**

**Times 5**

**Take away 13**

**Get 50% of  
this number**

**My Answer:**

**Gateway Number: 13**

**Q8**

**Treble it**

**Add 4**

**Times 3**

**Take away 16**

**Double it**

**My Answer:**

**Gateway Number: 19**

**Q9**

**Double it**

**Add 9**

**Times 6**

**Take away 19**

**Double it**

**My Answer:**

**Gateway Number: 16**

**Q10**

**Double it**

**Add 10**

**Times 4**

**Take away 22**

**Get 50% of  
this number**

**My Answer:**

**Gateway Number: 22**

**Q11**

**Times 3**

**Take away 4**

**Times 8**

**Halve this  
number**

**Divide by 4**

**My Answer:**

**Gateway Number: 17**

**Q12**

**Double it**

**Add 5**

**Times 5**

**Add 9**

**Get 25% of  
this number**

**My Answer:**



**Gateway Number: 25**

**Q13**

**Times 4**

**Take away 5**

**Times 6**

**Halve this  
number**

**Divide by 3**

**My Answer:**

**Gateway Number: 24**

**Q14**

**Double it**

**Add 5**

**Times 5**

**Double it**

**Get 20% of  
this number**

**My Answer:**

**Gateway Number: 35**

**Q15**

**Times 5**

**Take away 7**

**Times 5**

**Halve this  
number**

**Divide by 3**

**My Answer:**

**Gateway Number: 19**

**Q16**

**Times 2**

**Take away 11**

**Times 5**

**Add 11**

**Get 50% of  
this number**

**My Answer:**

**Gateway Number: 16**

**Q17**

**Double it**

**Take away 7**

**Times 5**

**Double it**

**Divide by 25**

**My Answer:**

**Gateway Number: 23**

**Q18**

**Times 5**

**Add 9**

**Times 5**

**Halve this  
number**

**Get 20% of  
this number**

**My Answer:**

**Gateway Number: 34**

**Q19**

**Double it**

**Take away 8**

**Times 5**

**Add double 6**

**Divide by 6**

**My Answer:**

**Gateway Number: 33**

**Q20**

**Times 6**

**Add 15**

**Times 5**

**Add double 5**

**Get  $\frac{1}{5}$  of this  
number**

**My Answer:**



**Gateway Number: 8**

**Q21**

**Double it**

**Times 6**

**Reverse the digits**

**Subtract from 100**

**Get 200% of  
this number**

**My Answer:**

**Gateway Number: 26**

**Q22**

**Double it**

**Take away 8**

**Times 5**

**Add double 7**

**Get 150% of  
this number**

**My Answer:**

**Gateway Number: 14**

**Q23**

**Double it**

**Reverse the digits**

**Times 5**

**Subtract from 500**

**Get  $\cdot 5$  of this  
number**

**My Answer:**

**Gateway Number: 12**

**Q24**

**Double it**

**Take away 8**

**Times 5**

**Add double 9**

**Get 50% of  
this number**

**My Answer:**

**Gateway Number: 21**

**Q25**

**Times 3**

**Add 19**

**Reverse the digits**

**Subtract from 200**

**Get  $\cdot 5$  of this  
number**

**My Answer:**

**Gateway Number: 11**

**Q26**

**Double it**

**Times 3**

**Take away 11**

**Add treble 7**

**Get 150% of  
this number**

**My Answer:**

Gateway Number: 23

**Q27**

Times 4

Reverse the digits

Times 5

Subtract from 180

Get  $\frac{2}{5}$  of this  
number

My Answer:

**Gateway Number: 35**

**Q28**

**Double it**

**Times 3**

**Take away 15**

**Add double 25**

**Get 20% of  
this number**

**My Answer:**



**Gateway Number: 22**

**Q29**

**Double it**

**Times 3**

**Add double 10**

**Subtract from 164**

**Get  $\cdot 75$  of this  
number**

**My Answer:**

**Gateway Number: 19**

**Q30**

**Double it**

**Subtract from 201**

**Times 7**

**Add double 4·5**

**Get 10% of  
this number**

**My Answer:**

**Gateway Number: 32**

**Q31**

**Times 5**

**Add double 5·5**

**Times 9**

**Get 1/3 of  
this number**

**Take away 13**

**My Answer:**

**Gateway Number: 16**

**Q32**

**Treble it**

**Subtract from 500**

**Times 4**

**Get 25% of  
this number**

**Double it**

**My Answer:**

**Gateway Number: 18**

**Q33**

**Times 7**

**Take double 9·5**

**Times 8**

**Get 75% of  
this number**

**Times 5**

**My Answer:**

**Gateway Number: 42**

**Q34**

**Double it**

**Subtract from 288**

**Times 6**

**Get  $\frac{3}{4}$  of this  
number**

**Take away 6  
times 4**

**My Answer:**

**Gateway Number: 33**

**Q35**

**Times 11**

**Add double 8·5**

**Times 2**

**Get 10% of  
this number**

**Times 12**

**My Answer:**

**Gateway Number: 27**

**Q36**

**Double it**

**Subtract from 175**

**Times 5**

**Get 20% of  
this number**

**Take away 8  
times 9**

**My Answer:**



Gateway Number: 42

**Q37**

Times 8

Take double  $9 \cdot 5$

Times 6

Get  $\frac{4}{3}$  of  
this number

Double it

My Answer:

**Gateway Number: 19**

**Q38**

**Times 9**

**Subtract from 199**

**Times 9**

**Get  $\frac{2}{3}$  of  
this number**

**Get 50% of  
this number**

**My Answer:**

**Gateway Number: 45**

**Q39**

**Double it**

**Add double 15**

**Times 4**

**Get 50% of  
this number**

**Times 6**

**My Answer:**

**Gateway Number: 55**

**Q40**

**Times 11**

**Subtract from 643**

**Times 10**

**Get 125% of  
this number**

**Get  $\frac{1}{5}$  of this  
number**

**My Answer:**

## Answers to Arrow Sums

Question Number	Answer
Q1	11
Q2	48
Q3	35
Q4	240
Q5	70
Q6	146
Q7	66
Q8	226
Q9	526
Q10	73
Q11	62
Q12	51
Q13	95
Q14	106
Q15	140
Q16	73
Q17	10
Q18	62
Q19	52
Q20	215
Q21	62
Q22	351
Q23	45
Q24	49
Q25	86
Q26	114
Q27	14
Q28	49
Q29	9
Q30	115
Q31	500
Q32	904
Q33	3210
Q34	894
Q35	912
Q36	49
Q37	5072

<b>Q38</b>	<b>84</b>
<b>Q39</b>	<b>1440</b>
<b>Q40</b>	<b>95</b>



