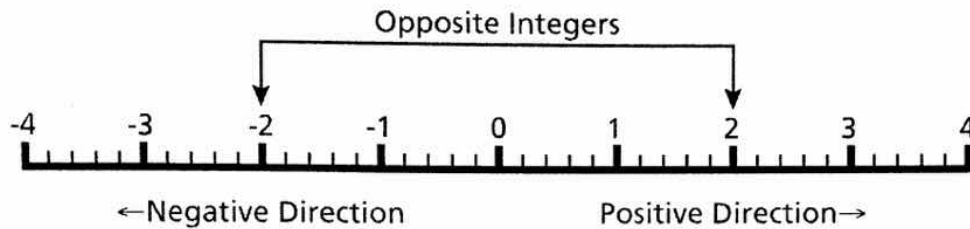




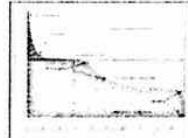
## Introducing the Topic

Students should be familiar with the concept of directed numbers from primary school. The number line with directed numbers on it will reinforce concepts learned at the primary level.



## Real Life Context

The following examples could be used to explore real life contexts.

- Temperature 
- Money e.g. Owing €10 being the same as -10
- Golf scores 
- Heights above and below sea level 
- Counter on a DVD player or rewinding live TV

# Section B: Student Activity 1

## Ordering

1. Mark in all the integers from -12 to 12 on the number line shown below.



2. Use the number line above to say which is greater

(a) 0 or 7 7      (b) -1 or 2 2      (c) -6 or 7 7  
 (d) -4 or 2 2      (e) 7 or -5 7      (f) -10 or -2 -2  
 (g) -10 or -12 -10      (h) -5 or -6 -5

3. Use the number line above to say which is smaller

(a) 1 or 4 1      (b) 7 or 5 5      (c) -6 or 8 -6  
 (d) -4 or -2 -4      (e) -7 or 6 -7      (f) -8 or -2 -8  
 (g) -10 or -3 -10      (h) -8 or -12 -12

4. Complete the statement: If one number is larger than another it lies further right of it on the number line.

5. From the following groups, list the numbers from the highest to the lowest (i.e. in decreasing order)

(i) 3, -5, 7, -3, 9. 9, 7, 3, -3, -5

(ii) 8, -6, -2, -3, 5. 8, 5, -2, -3, -6

(iii) -9, -7, 6, -3, -2. 6, -2, -3, -7, -9

(iv) 4, -7, 0, -4, -5. 4, 0, -4, -5, -7

5. Which of the following temperatures are colder?

(i) 8°C or 5°C 5°C

(ii) -7°C or 2°C -7°C

(iii) 0°C or 5°C 0°C

(iv) -8°C or -5°C -8°C

6. Insert the correct symbol > or < between the following numbers.  
 Example: 10 > 5 because 10 is bigger than 5

i) 14 > 5

ii) -2 < 5

iii) 7 > -3

iv) -10 < -8

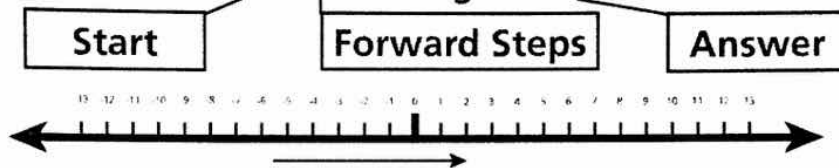
v) -100 > -102

vi) 76 > -76

# Section C: Student Activity 2

## Addition and Subtraction

1. The number line shows  $-4 + 6$  which gives 2



Use the number lines below to show the answers to the following questions. Show your work on the number lines.

i)  $2 + 4$



Answer +6

ii)  $-8 + 10$



Answer +2

iii)  $-6 + 5$



Answer -1

iv)  $-12 + 8$



Answer -4

v)  $-11 + 4$



Answer -7

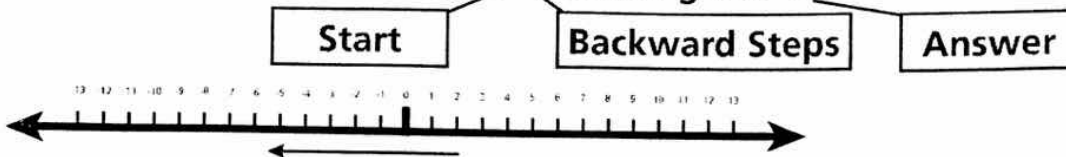
2. Find the values of each of the following

i) $2 + 7 =$ <u>+9</u>	ii) $-5 + 7 =$ <u>+2</u>	iii) $-7 + 2 =$ <u>-5</u>
iv) $-3 + 1 =$ <u>-2</u>	v) $-5 + 10 =$ <u>+5</u>	vi) $-9 + 2 =$ <u>-7</u>
ii) $-6 + 12 =$ <u>+6</u>	iii) $-7 + 13 =$ <u>+6</u>	iv) $-2 + 0 =$ <u>-2</u>
(v) $-11 + 7 =$ <u>-4</u>		

3. Explain how you got the answers to any one of the questions in question 2 above \_\_\_\_\_

# Section C: Student Activity 2 (continued)

4. The number line shows  $2 - 7$  which gives  $-5$



Use the number lines below to show the answers to the following questions. Show your work on the appropriate number line in each case.

i)  $5 - 4$



Answer +1

ii)  $12 - 10$



Answer +2

iii)  $-5 - 4$



Answer -9

iv)  $-2 - 8$



Answer -10

v)  $-9 - 4$



Answer -13

# Section C: Student Activity 2 (continued)

5. The table below shows the temperatures in a number of cities. If the temperature in Galway is  $15^{\circ}\text{C}$ , fill in the table below to find the temperature in the various cities.

CITY	Warmer/Colder	Temperature
Galway		$15^{\circ}\text{C}$
Dublin	$2^{\circ}$ colder than Galway	$13^{\circ}\text{C}$
Paris	$10^{\circ}$ warmer than Galway	$25^{\circ}\text{C}$
Moscow	$20^{\circ}$ colder than Galway	$-5^{\circ}\text{C}$
New-York	$4^{\circ}$ warmer than Moscow	$-1^{\circ}\text{C}$
Sydney	$25^{\circ}$ colder than Galway	$-10^{\circ}\text{C}$
Cairo	$10^{\circ}$ warmer than Paris	$35^{\circ}\text{C}$
Oslo	$3^{\circ}$ colder than Moscow	$-8^{\circ}\text{C}$

6. Find the values of each of the following.

a)  $2 + (-4) + 5$  Answer   $+3$

b)  $7 + 6 + (-10)$  Answer   $+3$

c)  $8 + (-7) + (-6)$  Answer   $-5$

d)  $-2 + (-3) + (-3)$  Answer   $-8$

7. Find the value of each of the following

a)  $11 + (-2) + 3 + (-1) + 6 + (-4) + (-3)$  Answer   $+10$

b)  $-8 + 12 + (-2) + (-12) + 7 + (-7)$  Answer   $-10$

c)  $10 + (-2) + 14 + (-11) + 3 + (-8) + 12$  Answer   $+18$

## Section C: Student Activity 2 (continued)

8. The scores, compared to par, for ten players in a golf tournament are listed in the following table. (See below for definition of par.)

Name	Round 1	Round 2	Round 3	Round 4	Total score compared to par
O'Brien	-2	-3	+3	Level (0)	-2
McCarthy	-1	+2	+2	+1	+4
Collins	Level (0)	Level (0)	-1	Level (0)	-1
O'Connor	+1	+2	-3	Level (0)	Par (zero)
Gallagher	-4	-1	+1	-2	-6
Ryan	+2	-2	Level (0)	+3	+3
Conneely	-1	Level (0)	-2	+4	+1
Cleary	-4	-3	-1	Level (0)	-8
Scanlon	+1	-3	Level (0)	-1	-3
Lyons	-3	+3	Level (0)	-1	-1

Use this table to answer the following questions

- i) Fill the total score, compared to par, for each player into the table above. ✓

ii) Which player had the lowest score? Cleary (-8)

iii) Which player had the highest score? McCarthy (+4)

iv) Who is the best golfer, according to the above table? Cleary

**Definition:** Par is the number of strokes an expert golfer is expected to need to complete each individual hole, or all the holes on a golf course.

9. Mr. McKeon has €500 in his bank account. During the day he withdraws €275 from an ATM and a cheque for €370 is also debited from his account. What is the account balance at the end of the day?

$$500 - 275 - 370 = -145$$