Name: _____

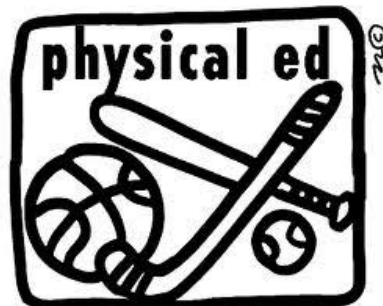# Worksheet Booklet

Katoomba High School

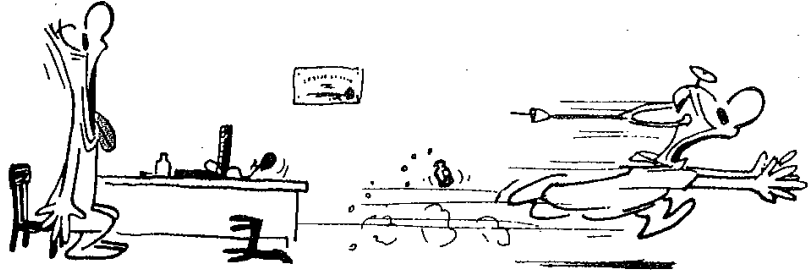# Stage 4 (7B)

<u>Instructions</u>

- Complete all the sheets in this booklet
- Write in the space provided
- Hand booklet in to Deputy Principal

Week 16

NUMBERS

Order of operations

Exercise 16A

> Example $4 + 1 + 2 = 7$ $4 + 1 = 5, 5 + 2 = 7$

Write down the answers to these additions:

1. $2 + 3 + 4$
2. $5 + 2 + 3$
3. $6 + 1 + 4$
4. $2 + 4 + 6$
5. $8 + 2 + 10$
6. $1 + 2 + 3$
7. $2 + 4 + 1$
8. $10 + 6 + 3$
9. $3 + 7 + 4$
10. $4 + 2 + 1$

Most of you will have had no trouble at all in obtaining the correct answer to the exercise above. Look carefully at the next example.

$$2 + 3 \times 4$$

Some of you may give 20 as the answer to the above example, but this is incorrect. The correct answer is 14. Do you know why?

The reason is that the multiplication part of the sum is stronger than the addition part. Here is the example again.

$$2 + 3 \times 4 = 2 + 12$$
$$= 14$$

What is the answer to this question? *Remember to multiply first.*

$$3 + 2 \times 5$$

The answer is of course 13.
Here is the example again with the working.

$$3 + 2 \times 5 = 3 + 10$$
$$= 13$$

Exercise 16B
Work out the following, remembering to multiply first.

1. $2 + 3 \times 6$
2. $3 + 1 \times 5$
3. $4 + 2 \times 3$
4. $6 + 1 \times 2$
5. $5 + 2 \times 3$
6. $1 + 6 \times 2$
7. $2 + 7 \times 1$
8. $3 + 4 \times 2$
9. $4 + 5 \times 2$
10. $1 + 2 \times 4$
11. $6 + 3 \times 2$
12. $5 + 1 \times 5$
13. $6 + 6 \times 2$
14. $7 + 2 \times 5$
15. $8 + 3 \times 2$
16. $10 + 2 \times 3$
17. $8 + 10 \times 3$
18. $5 + 10 \times 3$
19. $8 + 7 \times 2$
20. $7 + 6 \times 4$

Exercise 16C
Look carefully at these before working them out. Remember to multiply first.

1. $2 \times 3 + 4$
2. $3 \times 4 + 1$
3. $2 + 6 \times 3$
4. $4 + 2 \times 5$
5. $3 \times 2 + 7$

6. $2 + 4 \times 5$
7. $4 \times 5 + 3$
8. $4 + 5 \times 3$
9. $3 + 7 \times 2$
10. $7 \times 3 + 2$

11. $4 + 4 \times 3$
12. $10 \times 2 + 3$
13. $6 + 4 \times 4$
14. $8 \times 7 + 2$
15. $4 \times 10 + 6$

16. $4 + 10 \times 6$
17. $8 + 6 \times 2$
18. $6 \times 8 + 2$
19. $4 \times 7 + 6$
20. $4 + 7 \times 6$

Exercise 16D
Work out the following, remembering to multiply first.

1. $12 - 1 \times 5$
2. $20 - 4 \times 3$
3. $16 - 4 \times 2$
4. $10 - 3 \times 1$
5. $23 - 5 \times 2$

6. $11 - 1 \times 5$
7. $32 - 8 \times 3$
8. $15 - 4 \times 3$
9. $18 - 2 \times 5$
10. $40 - 4 \times 7$

11. $23 - 3 \times 6$
12. $21 - 5 \times 4$
13. $17 - 3 \times 3$
14. $32 - 5 \times 6$
15. $57 - 8 \times 7$

16. $34 - 4 \times 8$
17. $26 - 5 \times 5$
18. $19 - 3 \times 6$
19. $47 - 9 \times 5$
20. $100 - 10 \times 10$

Grouping symbols

Look at the first example again.
$$(2 + 3) \times 4$$
This time something is included which is even stronger than multiplication. This is the *grouping symbol* ( ) we use. It means that you must work out the part inside the *grouping symbols* first. Here is the above example again, and the working:
$$(2 + 3) \times 4 = 5 \times 4$$
$$= 20$$

Exercise 16E
Work out the following. Remember to work out the part inside the grouping symbols first.

1. $(2 + 3) \times 2$
2. $(3 + 1) \times 4$
3. $3 \times (2 + 3)$
4. $4 \times (1 + 5)$
5. $4 \times (2 + 7)$

6. $4 \times (5 + 6)$
7. $(2 + 7) \times 3$
8. $(4 + 2) \times 5$
9. $(6 + 1) \times 3$
10. $2 \times (3 + 6)$

11. $4 \times (2 + 1)$
12. $5 \times (4 + 5)$
13. $3 \times (6 - 1)$
14. $2 \times (4 - 2)$
15. $(10 - 6) \times 4$

16. $(5 - 2) \times 3$
17. $3 \times (10 + 2)$
18. $2 \times (4 + 3)$
19. $5 \times (2 + 1)$
20. $6 \times (12 - 7)$

*   *   *   *   *

21. $(2 + 3) \times (3 + 4)$
22. $(4 - 2) \times (2 + 4)$
23. $(3 + 2) \times (6 - 4)$
24. $(1 + 7) \times (3 + 2)$

25. $(6 - 5) \times (3 + 7)$
26. $(10 - 7) \times (4 + 5)$
27. $(2 + 4) \div (6 - 3)$
28. $(5 + 9) \div (6 + 1)$

29. $(5 + 3) \div (10 - 6)$
30. $(15 - 5) \div (20 - 10)$

Classroom Unit 2 –ene –ere –ese –ete

The List

scene	obscene	serene				
here	mere	severe	sphere	sincere	adhere	atmosphere
Japanese	Chinese	Burmese	Lebanese	Vietnamese		
deplete	complete	athlete	delete	concrete		

1 People who come from China are called Chinese. What are people who come from the following countries called?

Burma _____   Japan _____   Vietnam _____

Taiwan _____   Portugal _____   Lebanon _____

2 Which word: mete, meet or meat?

The magistrate will _____ out severe punishments if rowdy crowds _____

to steal the butcher's _____ supply.

3 Write the following words in alphabetical order: scene   severe   sphere   sincere   serene

_____

4 Answer Yes or No . . .

a Could chewing-gum adhere to your foot? _____

b Is a crowded railway station likely to be a serene place? _____

c Would a cyclone severely affect a tent village? _____

5 Which words from the **list** . . . ?

a honest _____   **b** this place _____   **c** nothing more than _____

6 Which word? Write here or hear in these sentences . . .

a I can _____ every word that you say.

b The detectives searched over there and then they came over _____ .

7 Write the **prefix** that can be added to 'sincere' to give the word's opposite (**antonym**). _____

Word Building

1 Add –ly to the following words: mere _____   sincere _____

obscene _____   severe _____   serene _____

Select one of these new words and write it in a sentence.

_____

2 Add –ion to the following words (be careful):

complete _____   delete _____   deplete _____
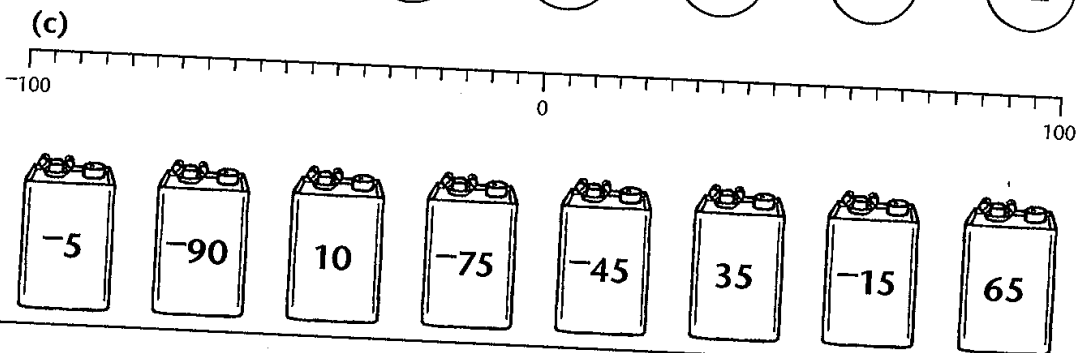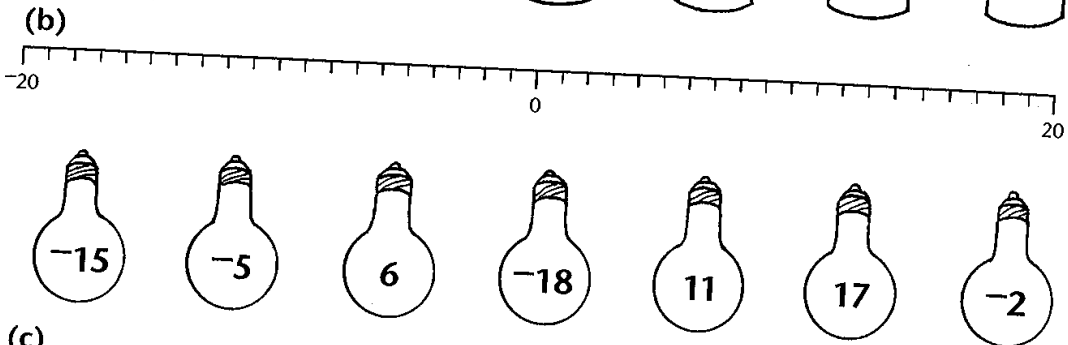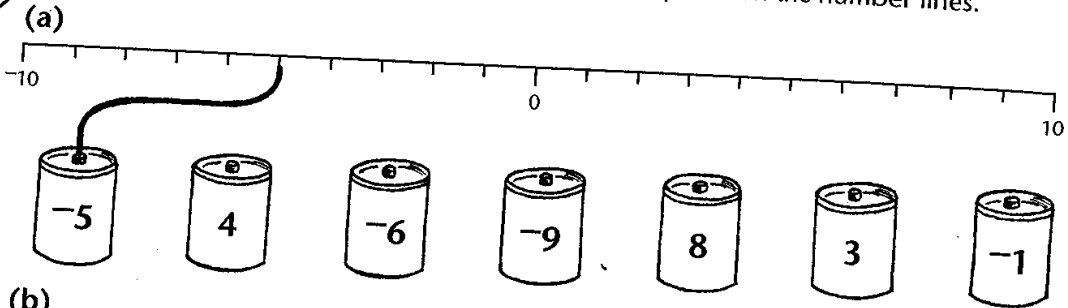
Complete: When adding –ion the 'e' is _____.

For Champs   hygiene   scalene   persevere   obsolete   Taiwanese   Portuguese   mete

Are you positive?

A Join these positive and negative numbers to the correct places on the number lines.

(a)

-10 .... 0 10

-5   4   -6   -9   8   3   -1

(b)

-20 .... 0 20

-15   -5   6   -18   11   17   -2

(c)

-100 .... 0 100

-5   -90   10   -75   -45   35   -15   65

B

1. Fill in the < or > sign.

(a) -6 [<] -2

(b) -5 [ ] -6

(c) -9 [ ] -11

(d) -22 [ ] -17

(e) -21 [ ] -20

(f) -14 [ ] -18

(g) -45 [ ] -53

(h) -37 [ ] -40

(i) -55 [ ] -41

(j) -73 [ ] -74

(k) -78 [ ] -87

(l) -91 [ ] -89

(m) -99 [ ] 1

(n) -174 [ ] -108

(o) -494 [ ] -748

2. Arrange the numbers in each group in **ascending order**.

(a) -44   12   -38   -47   33   ‾47,_____

(b) -472   -268   178   -297   26   _____

(c) -921   -27   538   -538   921   _____

Remember that negative numbers work in a different way from positive numbers. With positive numbers 5 is larger than 4, but with negative numbers ‾5 is **smaller** than ‾4. Ascending order means in order from smallest to largest.

LE WEEKEND

Here are some activities people like to do on the weekends. How many of these can you find in this wordfind puzzle?

WORDLIST

faire du surf, lire, pêcher, faire de la voile, écouter de la musique, regarder la télévision, danser, faire de l'équitation, nager, marcher, faire du vélo, skier, paresser, faire les boutiques, pique-niquer, faire du skate-board, peindre, jouer au football australien, jouer au netball, jouer au football, jouer au tennis, jouer au cricket, jouer de la guitare.

E	U	Q	I	S	U	M	A	L	E	D	R	E	T	U	O	C	É
H	I	K	J	K	O	F	D	A	A	R	E	L	F	L	L	O	N
P	P	E	R	I	L	O	Y	N	E	A	G	I	A	L	É	S	O
R	E	V	R	E	G	K	S	U	R	O	A	O	I	A	V	T	I
T	E	I	F	R	E	E	Q	E	N	B	R	V	R	B	U	T	T
A	M	S	N	H	R	I	H	A	P	E	D	A	E	T	D	E	A
R	K	H	S	D	N	C	G	L	A	T	E	L	L	O	E	K	T
E	D	O	D	E	R	E	U	O	R	A	R	E	E	O	R	C	I
H	B	E	U	A	R	E	M	R	T	K	L	D	S	F	I	I	U
C	F	Q	M	E	R	A	C	S	Y	S	A	E	B	U	A	R	Q
Ê	I	U	T	R	O	O	P	U	B	U	T	R	O	A	F	C	É
P	N	I	E	U	H	G	G	L	A	D	É	I	U	R	R	U	L'
F	H	P	A	R	L	E	R	R	F	E	L	A	T	E	A	A	E
F	N	M	A	N	G	E	R	D	N	R	É	F	I	U	N	R	D
J	S	E	L	J	M	R	F	O	S	I	V	E	Q	O	C	E	E
H	F	N	H	E	N	I	P	P	H	A	I	W	U	J	E	U	R
F	A	I	R	E	D	U	S	U	R	F	S	D	E	K	G	O	I
O	Z	A	E	P	O	R	U	E	N	M	I	V	S	K	H	J	A
S	I	N	N	E	T	U	A	R	E	U	O	J	O	T	I	A	F
N	E	C	B	J	O	U	E	R	A	U	N	E	T	B	A	L	L
L	P	E	R	A	T	I	U	G	A	L	E	D	R	E	U	O	J

HIV and AIDS

HIV damages the body's immune system so it cannot fight off disease and infection. AIDS is the later stages of infection with HIV.

HIV is transmitted through:
- unprotected vaginal intercourse
- unprotected anal intercourse
- sharing drug injecting equipment
- a skin wound coming into contact with the blood of an infected person
- an infected mother passing the virus to her baby during pregnancy, at childbirth or during breast-feeding.

HIV is not transmitted through:
- kissing or cuddling
- shaking hands
- sharing knives, forks, cups, glasses, plates
- toilet seats.

Symptoms include the following:
- Most people with HIV look and feel healthy.
- Over half will develop flu-like symptoms one to six weeks after becoming infected.
- Many people have no symptoms at all; most will have no symptoms for several years.
- Later, the infection may cause unexplained diarrhoea, weight loss, rashes, fever or one of the AIDS conditions.
- AIDS conditions include pneumonia, brain infections, skin cancers and others.

A blood test can determine whether you have HIV; it may take three months before the virus shows up in the blood test.

Prevention of HIV and AIDS is by:
- using a condom during sexual activity
- not sharing drug injecting equipment.

Questions
1. What does HIV stand for and what does the disease do to the body?
2. How is HIV transmitted?
3. What disease can result from HIV?
4. What conditions are associated with AIDS?
5. What are two ways in which HIV and AIDS infection can be avoided?

▶ HEALTH FACT

An Australian Government report, *Australia's young people and their health and wellbeing 2003*, revealed:
- a growing number of young people are catching sexually transmitted infections — most commonly chlamydia and gonorrhoea
- while the rate of chlamydia infections tripled between 1991 and 2001, and the rate of gonorrhoea grew by 1.5 times, the incidence of syphilis infections more than halved.

Source: C. Marriner, 'Generation Y not', *The Sydney Morning Herald*, 28 November 2003.

skill BOOSTER ▶ *communicating*

Sexually transmitted infections

1. In pairs, research one sexually transmitted infection and one blood-borne virus.
2. Design an information fact sheet for each. Include the following information:
   - what causes it
   - how it affects the body
   - how it is transmitted from person to person
   - who is at risk
   - how is it treated
   - ways to prevent transmission.

1. Identify the influences on young males and females regarding decisions whether to be sexually active.
2. Who is responsible for safe sex practices? Explain.
3. Describe ways in which people can prevent STIs and blood-borne viruses from spreading.
4. How can you ensure your sexual relationships in the future are positive?

CHAPTER 6: A HEALTHY LIFESTYLE ▶ 193

This table shows the distances in kilometres between places in New South Wales and the ACT.

Bega											
970	Bourke										
1250	616	Broken Hill									
227	743	1097	Canberra								
977	945	1329	827	Coffs Harbour							
648	711	641	495	1251	Deniliquin						
594	775	1159	444	394	868	Newcastle					
535	435	819	308	762	464	512	Parkes				
425	785	1169	293	554	717	171	365	Sydney			
825	644	1028	675	301	1136	283	461	422	Tamworth		
393	727	857	245	996	255	613	276	462	737	Wagga Wagga	
345	818	1266	238	633	664	250	298	80	481	409	Wollongong

1 Find the distance between:
   a Sydney and Canberra
   b Deniliquin and Broken Hill
   c Bourke and Wollongong
   d Newcastle and Bega
   e Coffs Harbour and Parkes
   f Wagga Wagga and Canberra
   g Tamworth and Coffs Harbour
   h Bega and Wollongong

2 Find the place that is:
   a 1329 km from Coffs Harbour
   b 996 km from Wagga Wagga
   c 227 km from Canberra
   d 868 km from Deniliquin
   e 171 km from Newcastle
   f 435 km from Parkes

3 Find the two places that are separated by a distance of:
   a 80 km
   b 616 km
   c 648 km
   d 819 km
   e 1136 km
   f 308 km

4 Find the place that is closest to:
   a Coffs Harbour
   b Wollongong
   c Newcastle
   d Broken Hill
   e Canberra
   f Coffs Harbour

5 Find the place that is farthest from:
   a Deniliquin
   b Wagga Wagga
   c Parkes
   d Tamworth
   e Sydney
   f Bega

6 Find the distance from:
   a Sydney to Bega via Canberra
   b Wagga Wagga to Tamworth via Newcastle
   c Wollongong to Deniliquin via Wagga Wagga
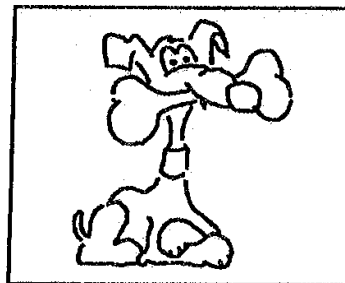   d Newcastle to Parkes via Sydney

La famille = The family

(A) Écris the French word for each family member on the line below.

_____ _____ _____

_____ _____ _____

_____

ATHLETICS

Find the word or phrase from Column B that best matches the word in Column A

Column A	Column B
1. ___ ATHLETICS	1. A body type characterised by a rounded or pear shaped build. The body looks soft, the limbs taper and there is a higher percentage of body fat.
2. ___ ECTOMORPH	2. Organises competitors into heats and lanes.
3. ___ ENDOMORPH	3. Also known as body typing. It attempts to classify body shape according to the amount of fat, muscle and linearity.
4. ___ MESOMORPH	4. The study of human movement.
5. ___ SOMATOTYPING	5. Fills many roles including teacher, friend, motivator, leader, organiser etc.
6. ___ HURDLES	6. The official with control of the race.
7. ___ TRIPLE	7. Calls events, gives information, informs competitors and spectators of results.
8. ___ POLE	8. The correct way to perform a skill.
9. ___ JAVELIN	9. Decides the order of placegetters in a track event.
10. ___ DISCUS	10. A track event. A competitior must clear a number of obstacles over a distance of 110m for men and 100m for women.
11. ___ BIOMECHANICS	11. A body type characterised by a muscular build, broad shoulders and low body fat.
12. ___ TECHNIQUE	12. Comprises many different events that are usually divided into track and field events, or runs, jumps and throws.
13. ___ GOALS	13. Every athlete should participate in a fair and sportsmanlike manner. This is known as _____ practice.
14. ___ ETHICAL	14. Used to increase motivation and confidence, reduce anxiety and improve performance.
15. ___ SPECIFICITY	15. The _____ jump is also known as the 'hop, step and jump'.
16. ___ MARSHAL	16. In the _____ vault the vertical distance jumped is measured.
17. ___ STARTER	17. A field event where the throw is measured where the implement lands. A foul is called if the implement lands tail first.
18. ___ JUDGE	18. A field event where the implement is held with one hand. A turn is generally used to help propel the implement.
19. ___ ANNOUNCER	19. A body type characterised by linearity (thinness). Hips and shoulders are narrow and there is little body fat.
20. ___ COACH	20. Refers to the specific needs or requirements of each sport or activity.

Worksheet 1-02 Integer review

1. $7 + 3 + (-8) =$ _____

2. $4 + (-1) + 3 =$ _____

3. $-6 + 4 + 8 =$ _____

4. $2 + 6 - 4 - 10 =$ _____

5. $5 - 11 + 1 + 4 =$ _____

6. $-3 + 5 + 2 - 7 =$ _____

7. $6 - 9 + 5 - 4 =$ _____

8. $-1 + 6 - 5 - 2 =$ _____

9. $3 + 3 - 4 - 4 =$ _____

10. $2 - 5 - 3 - 1 =$ _____

11. $7 \times (-2) =$ _____

12. $-3 \times (-3) =$ _____

13. $-6 \times 1 =$ _____

14. $8 \times (-4) =$ _____

15. $-7 \times (-5) =$ _____

16. $(-4)^2 =$ _____

17. $8 \times (-3) \times 2 =$ _____

18. $-1 \times (-5) =$ _____

19. $-3 \times 3 \times 2 =$ _____

20. $9 \times (-4) =$ _____

21. $7 + 2 - 9 - 3 =$ _____

22. $10 - 4 + 3 =$ _____

23. $-1 + 7 + 8 =$ _____

24. $-5 - 6 + 8 =$ _____

25. $4 - 9 - 5 =$ _____

26. $7 - 8 - 3 + 5 =$ _____

27. $-2 + 11 - 6 =$ _____

28. $4 + 2 - 10 + 1 =$ _____

29. $1 + 3 - 10 =$ _____

30. $8 + 8 - 7 - 3 =$ _____

31. $-6 \times (-8) =$ _____

32. $3 \times (-7) =$ _____

33. $-4 \times 11 =$ _____

34. $(-5)^2 =$ _____

35. $7 \times (-8) =$ _____

36. $-2 \times 2 \times (-2) =$ _____

37. $-4 \times 5 \times 2 =$ _____

38. $-9 \times 9 =$ _____

39. $-3 \times (-8) =$ _____

40. $7 \times 4 \times (-3) =$ _____

41. $8 \times (-2) - 10 =$ _____

42. $2 \times 3 - 4 =$ _____

43. $-6 \times 3 + 6 =$ _____

44. $10 - (-2) \times 5 =$ _____

45. $8 + 3 \times (-4) =$ _____

46. $-5 \times (-5) + 7 =$ _____

47. $-1 \times 8 - 9 =$ _____

48. $-3 \times (-7) + 11 =$ _____

49. $4 \times (-6) + 7 =$ _____

50. $-26 \div (-2) =$ _____

51. $\dfrac{48}{-6} =$ _____

52. $\dfrac{-32}{8} =$ _____

53. $\dfrac{-30}{-5} =$ _____

54. $\dfrac{-11 - 16}{3} =$ _____

55. $\dfrac{7 - (-3)}{-2} =$ _____

56. $5 \times (-8) \div 4 =$ _____

57. $3^2 + (-4)^2 =$ _____

58. $-6 \times (3 - 4) =$ _____

59. $12 - (-2) \times 5 =$ _____

60. $-3 \times (-7) + 9 \div (-3) =$ _____

beaker						tongs					tripod	
conical flask						gauze mat					heat-proof mat	
filter funnel						retort stand					cylinder	
spatula						bunsen burner					clamp	

Complete the word search using the words above.

b	e	a	k	e	r	a	b	c	d	e	f	t	c
g	c	h	i	g	a	u	z	e	m	a	t	o	l
t	a	b	c	d	e	f	g	h	i	j	k	n	a
r	l	m	c	y	l	i	n	d	e	r	a	g	m
i	n	o	p	q	r	s	t	u	v	w	x	s	p
p	c	o	n	i	c	a	l	f	l	a	s	k	y
o	z	z	y	w	x	v	u	v	t	s	r	q	s
d	b	u	n	s	e	n	b	u	r	n	e	r	p
a	b	c	d	e	f	g	h	i	j	k	l	m	a
n	o	r	e	t	o	r	t	s	t	a	n	d	t
a	b	c	d	e	f	g	h	i	j	k	l	m	u
p	q	f	i	l	t	e	r	f	u	n	n	e	l
h	e	a	t	p	r	o	o	f	m	a	t	z	a

Complete each square so the total of each row, up and down, across and diagonally is the same.

1

5		
10		
9		11

2

	9	2
	5	
8		

3

-1	1	3
4		

4

		-3
		2
-1		-5

5

2		
	$1\frac{2}{3}$	1
		$1\frac{1}{3}$

6

4	-10	0
	6	

7

1		
2		
-3		-1

8

	1.8	
1.2	0.2	1.6

9

	-4	
-1	0	-5

10

	$\frac{2}{5}$	$2\frac{2}{5}$
	2	
$1\frac{3}{5}$		

11

		6
		-1
	5	4

12

		4
	-1	9
-6		

13

5		11	0
12	-1	6	1
	8		10

14

1			-14
	-8		25
	28	7	
13	-17		12

15

6	-7	-8	3
			-2
	-4		2
-6		4	

16

$8\frac{1}{2}$			3
$2\frac{1}{2}$	$7\frac{1}{2}$	2	9
4	7		$5\frac{1}{2}$

17

11			8
	5		
4		2	7
-1	10		-4

18

	-1		9
	6	7	4
	2	3	
0		10	

19

	-4	-3	
		4	2
3	1	0	
-2		9	

20

8	-6	-5	5
-3	3		
		-2	4
-4			

21

	$\frac{2}{3}$		$2\frac{1}{2}$
$1\frac{1}{6}$	$2\frac{1}{6}$		$1\frac{2}{3}$
	$1\frac{1}{2}$	$1\frac{1}{3}$	
	$2\frac{2}{3}$		$\frac{1}{2}$

Home Study Unit 2

1 An **acrostic** sentence, or poem, is one in which the first letters of each word, or line, spell another word.

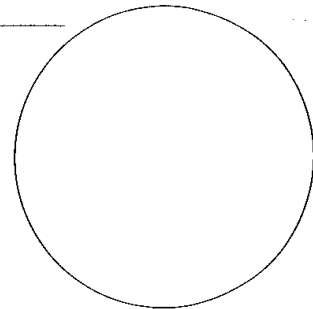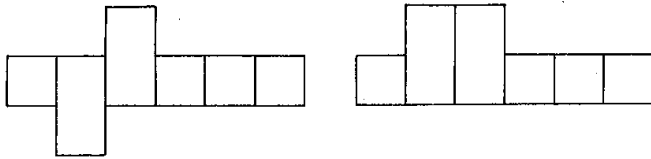For example: Many elephants trumpeted eagerly. (mete)

Write your own **acrostics** for the following words . . .

D	A	C
E	T	O
L	H	N
E	L	C
T	E	R
E	T	E
	E	T
		E

2 Unjumble: l o c p m t e e _____   s e e n C i h _____

napase Je _____   t e e m _____

3 **Funny Pictures** Draw . . . a serene scene, here, in this sphere:

4 Which **list** words fit into these **wordframes** . . . ?

Vocabulary Extension

Sphere words . . . Match the words with their meanings.

spherometer	not a perfect sphere but like a sphere
spherical	gaseous substance surrounding the Earth
spheroid	ball or globe
atmosphere	regions, of the Earth and its atmosphere, where things live
sphere	instrument for finding the radius of a sphere
biosphere	shaped like a sphere

General Knowledge

1 What am I? I am a distilled petroleum product used for lighting, warmth and as tractor fuel.

I begin with k _____

2 What am I? I am a small goat from the Himalayas. My wool is used for clothing and textiles.

_____

3 Draw and colour-in the national flags of the following people . . .

Chinese   Taiwanese   Japanese   Vietnamese   Burmese   Portuguese   Lebanese

1. $1.73 +
   2.00
   15.75
   ‾‾‾‾

2. $200.00 −
      37.50
   ‾‾‾‾‾

3. $4.71 × 7

4. $14.77 ÷ 7

5. A shop is selling coffee mugs for 98c. How much for 10 mugs?

6. Make out and total this bill:
   - 2 kg mushrooms at $4.55 per kg,
   - 20 kg potatoes at 54c per kg,
   - 20 bananas at 10 for $1.85,
   - 24 apples at 6 for $1.
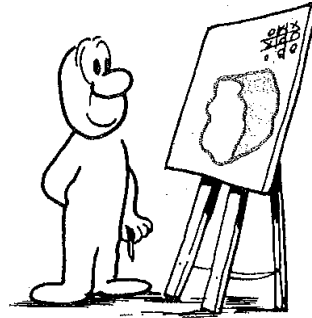
Looking back

7. Draw a sketch of a cylinder.

8. How many minutes in 3 hours?

9. Divide 963 by 9.

10. Without using calculators.
    Copy and complete:

    (a) the addition square

+	5	7	9
4			
6			
8			

    (b) the multiplication square

×	5	7	9
4			
6			
8			

- flask
- stand
- dish
- tongs
- test tube
- funnel
- tripod
- bunsen burner
- beaker

T	E	S	T	T	U	B	E	F	S
R	B	T	O	A	D	E	L	U	T
I	U	A	N	L	I	A	T	N	A
P	N	N	G	F	S	K	U	N	M
O	S	D	S	K	M	E	B	E	P
D	I	S	H	I	O	R	I	L	O
O	N	O	D	N	E	S	N	U	B
F	V	N	I	R	E	N	R	U	B

Assignment 7: Measuring Temperature

Most of us are familiar with the medical or 'clinical' thermometer, the glass tube the doctor or mother slipped under your tongue when you were sick to see if you had a temperature. It usually contains mercury, which is a liquid metal, or alcohol in the bulb, which is also known as a 'reservoir'. The liquid in the reservoir expands and moves up the tube as it is heated. 'The mercury is rising,' we say. This indicates a rise in temperature. We can make the equivalent of a thermometer with a flask or bottle by filling it with water, preferably coloured, and fitting it with a bore-stopper and glass tube.
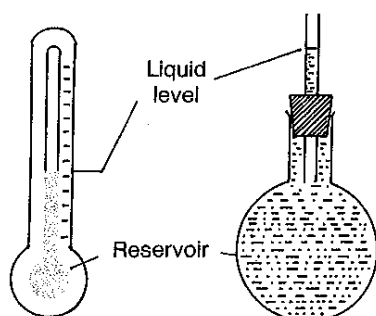
A thermometer and its equivalent

Limitations of the thermometer

A thermometer is useful for measuring 'normal' temperatures. But alcohol boils at 78.4°C and freezes at − 114°C. Mercury boils at 357°C and freezes at − 39°C. Glass melts at 800°C. How, then, can we measure the melting point of iron (1539°C) or the lowest temperature recorded in the Antarctic (− 88°C)? And how do we determine that the sun has a surface temperature of 6000°C?

Galileo's air thermometer

The low temperatures could be measured using the air thermometer invented by Galileo about 400 years ago, the great-grandfather of all thermometers. Filled with air, this thermometer will measure down to about − 180°C. With hydrogen it would reach − 253°C and with helium nearly − 269°C. Absolute zero (− 273°C) is the lowest temperature possible.
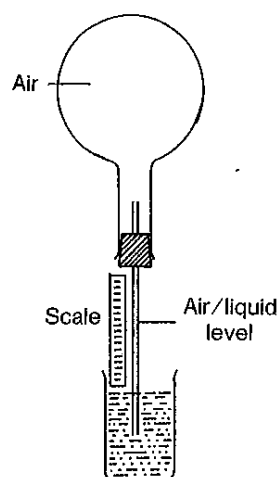
An air thermometer equivalent

The resistance thermometer

To measure temperature there are a number of alternatives involving electricity. The electrical resistance of a piece of metal increases with temperature. Hence,

electrical current decreases with temperature. An electrical meter (an ammeter) can readily be converted to a thermometer by changing the scale from amperes (for current) to degrees Celsius. A thermistor or a resistance thermometer (a piece of platinum in a glass tube) is used. It may be used for remote measurements.

A resistance thermometer

A thermocouple

A thermocouple is a handy thermometer as it can not only be used at some distance but it can be very tiny. It consists of two strands of different wire twisted together. Heat causes a very small current to flow which can be amplified to operate a meter.
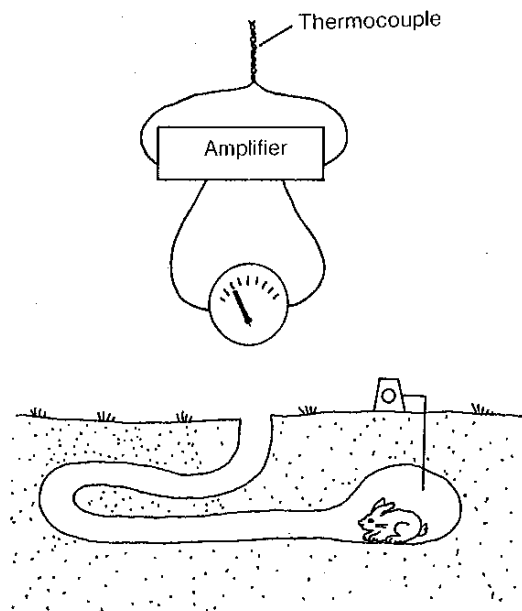
A thermocouple in use

The pyrometer

Very high temperatures, as in a blast furnace, or those at a distance, such as the surface temperature of the sun, are measured with a pyrometer. This measures the kind of light coming from an object. A 'white-hot' object is hotter than a 'red-hot' object, as you probably know. A pyrometer measures even more subtle differences in colour and converts them to a temperature reading.

A pyrometer

Questions

Answer in sentences.

1. What basic property of liquids and gases is used in the mercury, alcohol and air thermometers? Could solids be used?
2. How are the mercury and alcohol thermometers limited in their usefulness?
3. What is absolute zero?
4. How does electrical resistance change with temperature?
5. What is a thermocouple? Why is it so useful? Give examples suggesting where it might be used (class discussion may be necessary).

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1. **Le Corps** Label the following words to the correct part of the body!

A

E

B.

C.

G

F

D

J.

H

I
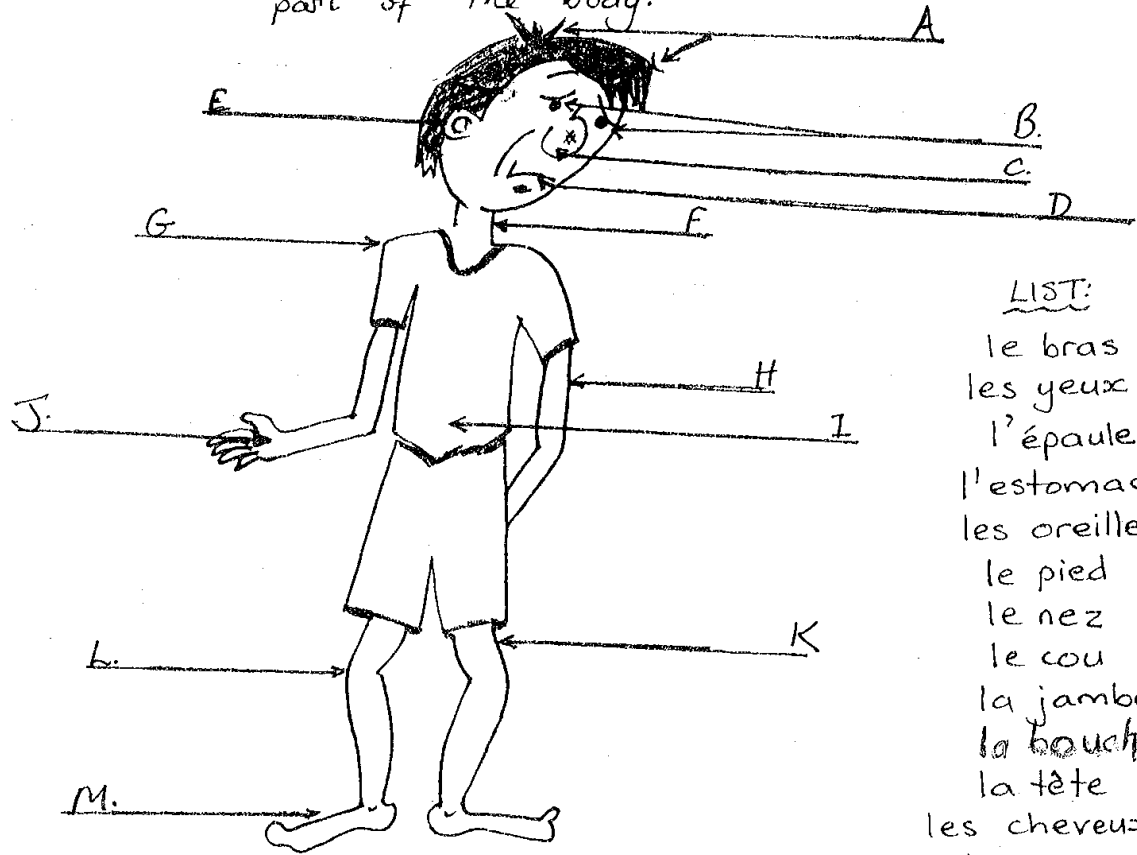
LIST:
le bras
les yeux
l'épaule
l'estomac
les oreilles
le pied
le nez
le cou
la jambe
la bouche
la tête
les cheveux
le genou
la main

L.

K

M.

Directions: Select from the box the correct word and write it in the blank.

les cheveux	les lèvres	
le front	le nez	la langue
la bouche	les oreilles	les yeux
les dents		

les

le

les

les

le

la

les

les

la
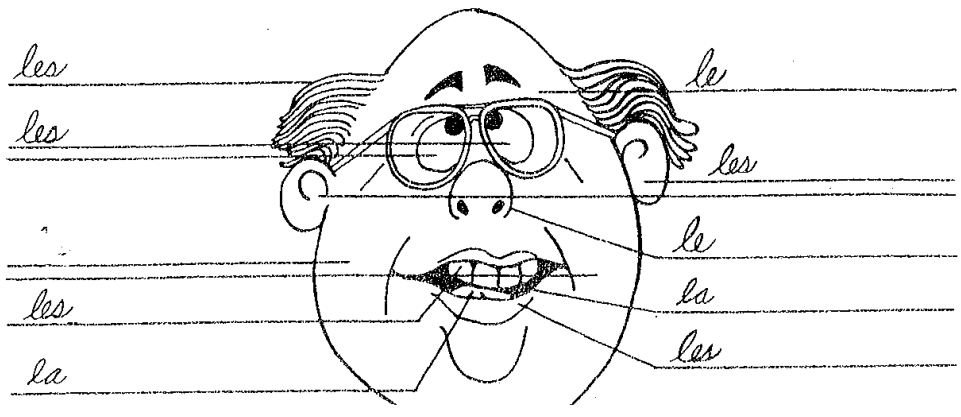
Il y a un Martien dans le jardin! Tu téléphones au journal pour donner la description du Martien. Ton/ta partenaire répond au téléphone et dessine le Martien.

VOCABULAIRE:

les oreilles

les cheveux

les yeux

les dents

la bouche

la langue

le nez

la moustache

le cou

les bras

les mains

les doigts

le ventre

les jambes (grosses)

le short

les pieds

□ carré   ◯ rond

EXPRESSIONS UTILES:
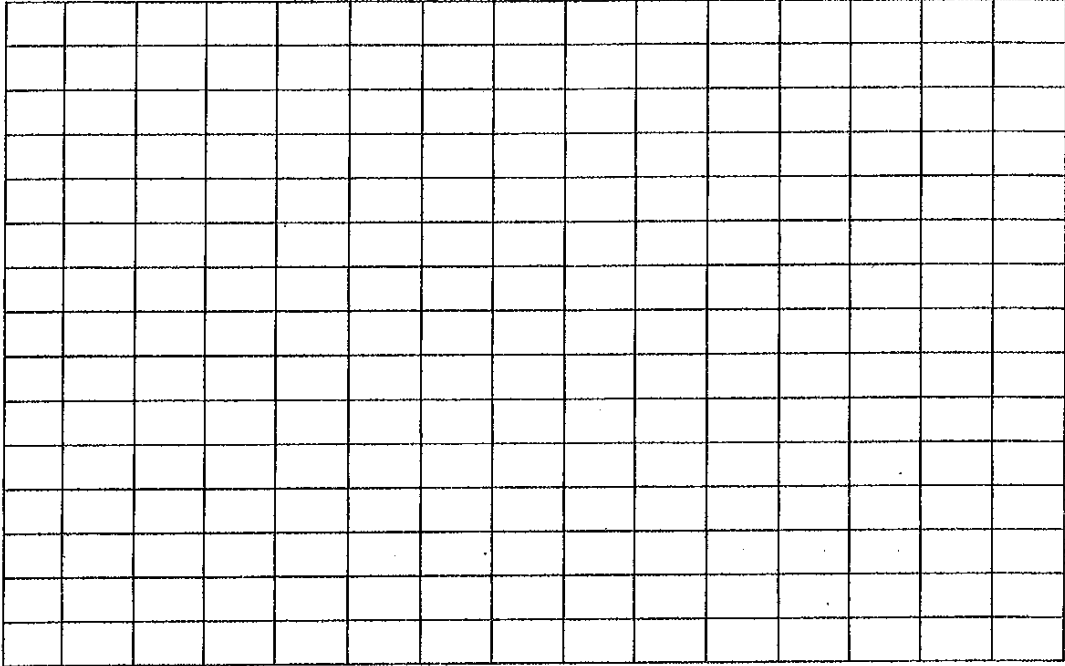
Il a.../Il n'a pas de...

au centre de...

ses jambes mesurent environ...

sous .

à gauche/à droite
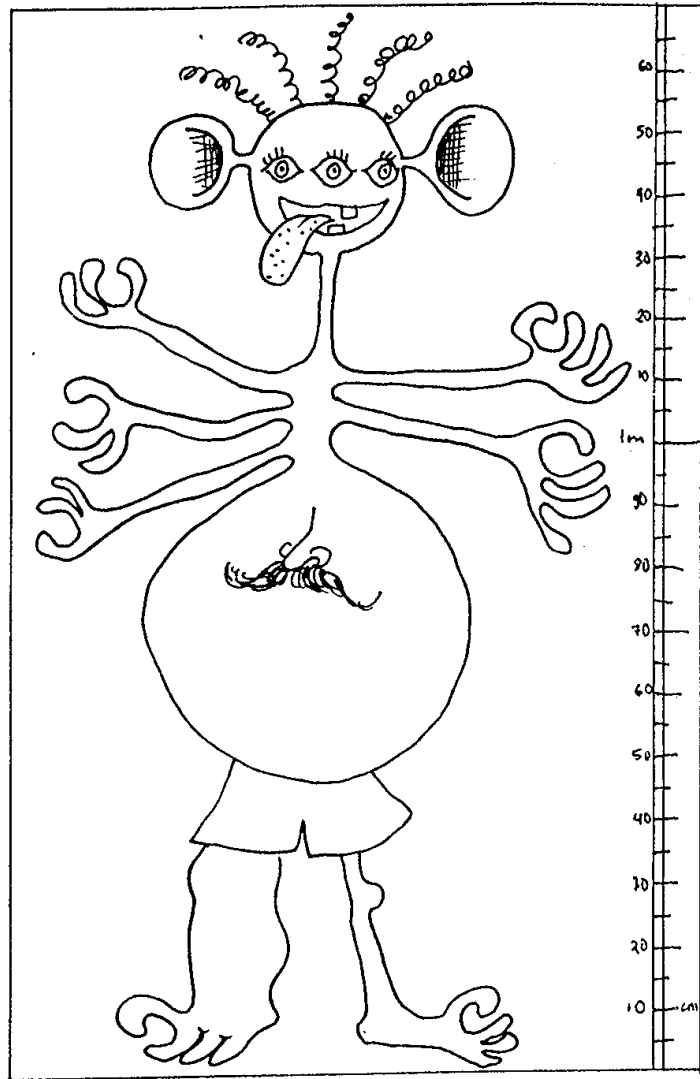
mince/gros

les cheveux frisés

les cheveux raides

long/court

THE BODY

Make a word search containing as many 'BODY' words as possible. Write the words that you have hidden in English in the space provided below. Give the finished puzzle to your friend to do.
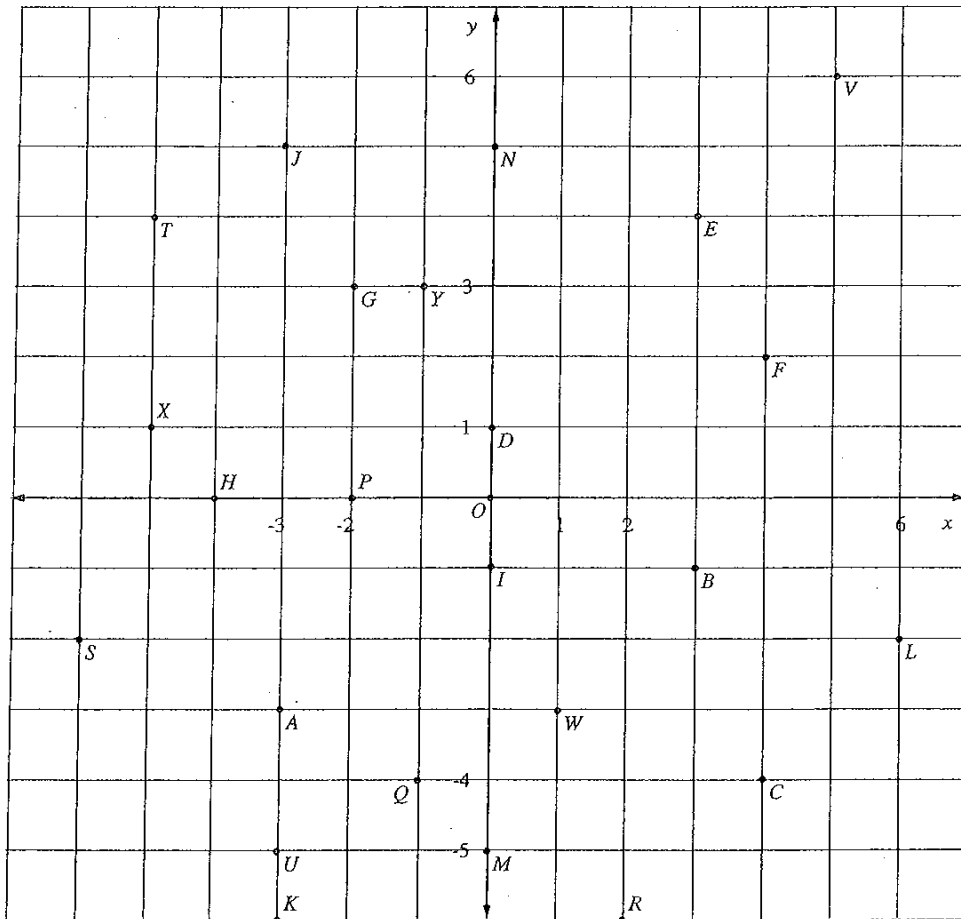
The words that I have hidden are:

_____

_____

_____

_____

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1 Complete the sentences below with the correct word or number from this list:

> coordinates cross number origin position up vertical
> x-axis x-coordinate y-axis 2 5

a A number plane is made up of _____ number lines or axes.

b The horizontal line going across is called the _____.

c The _____ line going _____ is called the _____.

d Two numbers written in the form (x, y) are used to show a _____ on the _____ plane.

e The two numbers in brackets are called _____.

f In the ordered pair $(2,5)$, the _____ is 2 while the y-coordinate is _____.

g The point $(0,0)$, where the two axes _____, is called the _____.

2 Fill in the missing values on the axes of the following number plane, then use the completed number plane to fill in the blanks below with the correct letters or numbers.

$C (4, \_\_)$	$H (\_\_, 0)$	$N (\_\_, 5)$	$\_\_ (-3, -3)$
$T (\_\_, \_\_)$	$G (-2, \_\_)$	$\_\_ (-1, -4)$	$D (\_\_, \_\_)$
$K (\_\_, -6)$	$\_\_ (-1, 3)$	$M (\_\_, -5)$	$J (\_\_, \_\_)$
$\_\_ (3, -1)$	$P (-2, \_\_)$	$\_\_ (-6, \_\_)$	$U (\_\_, -5)$
$\_\_ (3, 4)$	$I (\_\_, \_\_)$	$V (\_\_, 6)$	$\_\_ (6, \_\_)$
$F (\_\_, 2)$	$\_\_ (2, \_\_)$	$O (0, \_\_)$	$X (\_\_, \_\_)$

Copy on to grid paper and complete from this list of words:

CENTURY   MINUTE
DECADE   PARENTHESES
HEIGHT   OPERATION
HOUR   QUANTITY
LIQUID   SECOND
LITRE   SYMBOL
METRIC