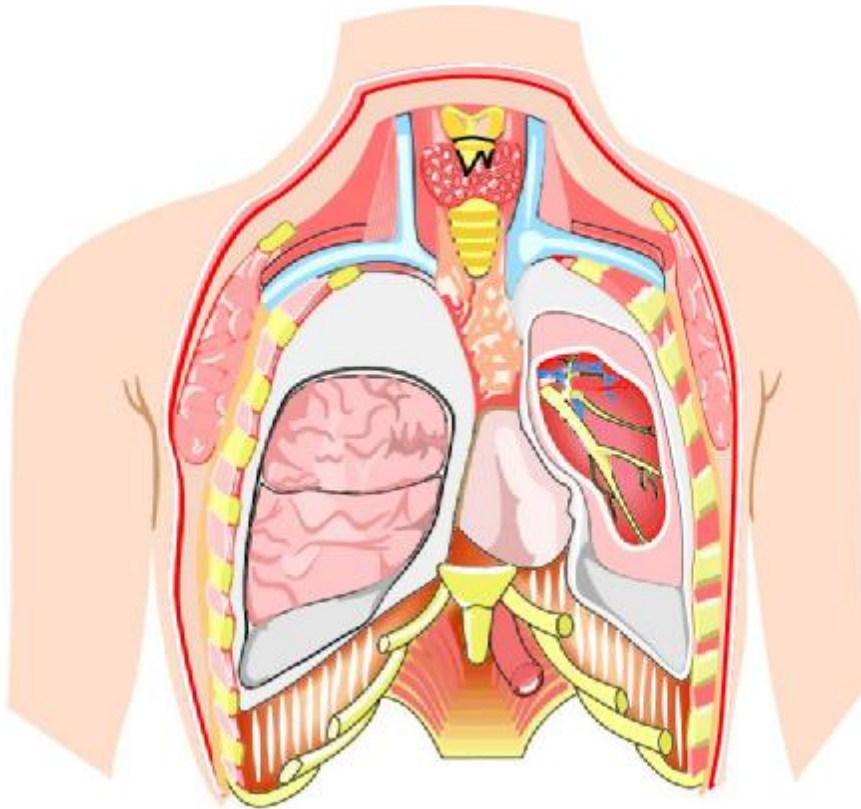


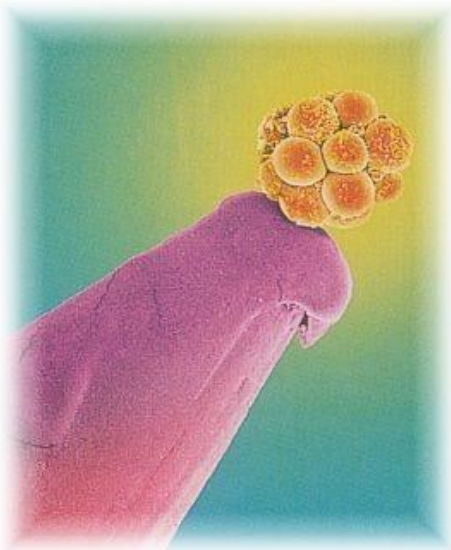
BIOLOGY



Words ...

Words ...

Words ...



Class: _____

Name: _____

Ubbö-Emmius-Gymnasium Leer
Ubbö-Emmius-Str. 6-8
26789 Leer

Dear student,

you are in class 9 now and from now on you'll have Biology in English.

If possible we'll always speak English, whether it is in the classroom, in the lab or in the computer-room.

To prepare you for our work in Biology I made up this vocabulary workbook. At the moment it contains introductory word lists and worksheets (see contents, next page).



It is your job to go through these word lists and work on the worksheets at home. You'll have time till after the autumn break to learn the expressions, but by then you should be able to remember and use them and act according to them.

We'll check the words and you may take a written test. At the end of every unit you'll get a vocabulary list from me. Put the lists into this vocabulary workbook and you'll be able to look up certain words, even much later. Thus, this book might become a big help for you.

I hope you'll learn a lot and we'll enjoy the Biology lessons all the same.

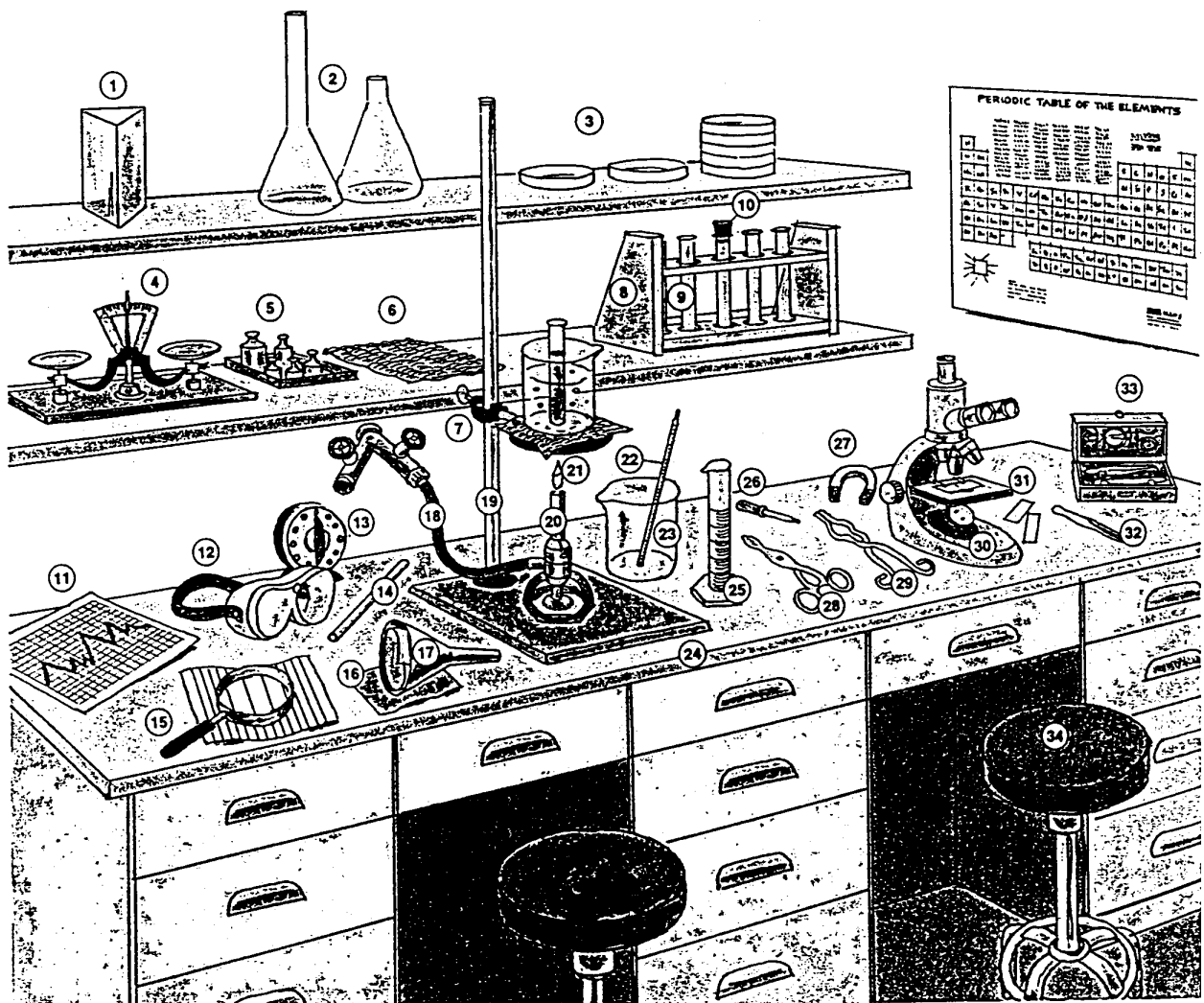
D. Ehrig.



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A Science Lab



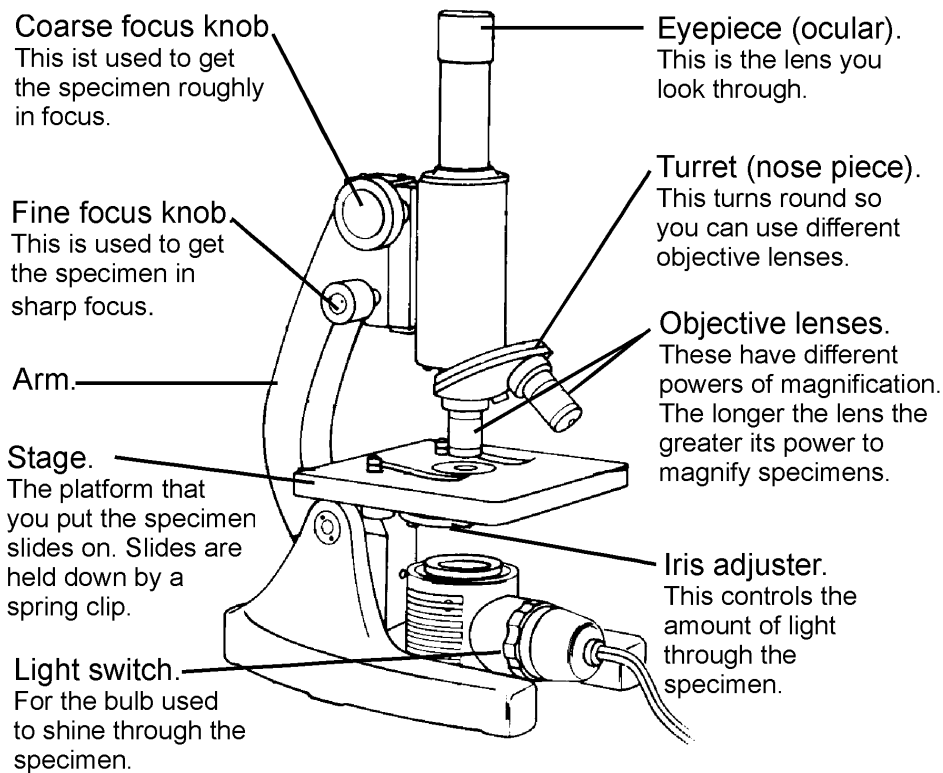
- | | | |
|---------------------|----------------------|------------------------|
| 1. prism | 13. timer | 25. graduated cylinder |
| 2. flask | 14. pipette | 26. medicine dropper |
| 3. petri dish | 15. magnifying glass | 27. magnet |
| 4. scales | 16. filter paper | 28. forceps |
| 5. weights | 17. funnel | 29. tongs |
| 6. wire mesh screen | 18. rubber tubing | 30. microscope |
| 7. clamp | 19. ring stand | 31. slide |
| 8. rack | 20. Bunsen burner | 32. tweezers |
| 9. test tube | 21. flame | 33. dissection kit |
| 10. stopper | 22. thermometer | 34. stool |
| 11. graph paper | 23. beaker | |
| 12. safety glasses | 24. bench | |

You are the scientist

You need:

- a microscope
- prepared slides

The parts of a microscope



Using a microscope

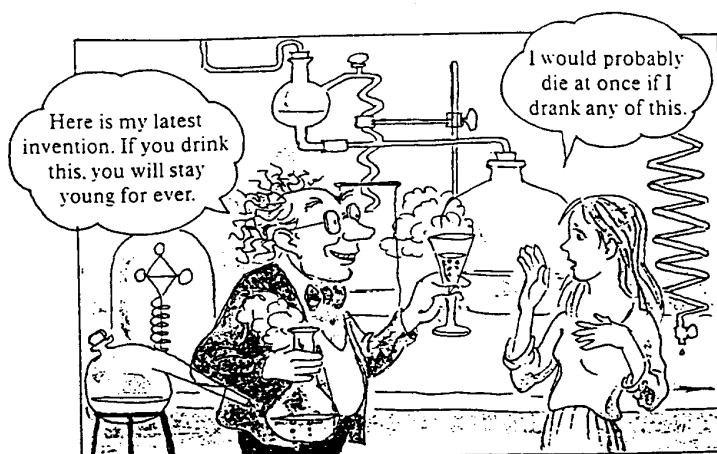
1. Turn the turret until you have the low power objective lens (the short lens) in line with the eyepiece.
2. Clip a slide on the stage so that it is in the centre under the objective lens and look through the eyepiece.
3. Adjust the coarse focus until the specimen becomes clear. If necessary adjust the fine focus until the specimen is in sharp focus.
4. Move the iris adjuster until the specimen is clearly lit.
5. Calculate the magnification by multiplying the power of the eyepiece by the power of the objective lens (e.g. a x 5 eyepiece used with a x 15 objective magnifies 75 times).
6. Notice how, when you move the slide, the specimen seems to move in the opposite direction.
7. Change to the medium power objective. Do not use the higher power objective yet. Focus the microscope and notice that you now see much less of the specimen but at a higher magnification.
8. How to use high power objectives: If this is done carelessly the lens and a slide can be damaged.
 - With your eyes level with the stage, slowly lower the high power objective until it almost touches the slide.
 - Look through the eyepiece and focus by moving the lens away from the slide (i.e. always focus upwards). This avoids smashing the lens through a slide.

List of important expressions: TASKS

collect (texts about drugs)	sammle (Artikel über Drogen)
comment on (the figures)	äußere Dich zu (den Zahlen)
compare (the two diagrams)	vergleiche (die beiden Diagramme)
consider (the pros and cons)	denke über (die Vor- und Nachteile) nach
construct (a diagram)	entwickle (ein Diagramm)
describe (the experiment)	beschreibe (das Experiment)
devise (an experiment)	denke Dir (ein Experiment) aus
discuss (the effect of ...)	diskutiere (die Auswirkung von ...)
draw conclusions from (the graph)	ziehe Schlußfolgerungen aus (dem Graphen)
examine (the leaf)	untersuche (das Blatt)
explain (each of these words)	erkläre (jedes dieser Worte)
fill in (the missing word)	ergänze (die fehlenden Worte)
find out (the names of ...)	finde (die Namen von ...) heraus
give an example / examples of ...	nenne ein Beispiel / Beispiele für ...
give the name of (an animal)	nenne den Namen (eines Tieres)
give reasons for (your suggestion)	nenne Gründe für (Deine Vermutung)
imagine (you are ...)	stelle dir vor, (Du wärst ...)
investigate ...	untersuche ...
label (the parts of the body)	beschrifte (die Teile des Körpers)
make a list of (the organs)	fertige eine Liste von (den Organen) an
name (2 organs)	benenne (2 Organe)
observe (the animals)	beobachte (die Tiere)
plan (an experiment)	plane (ein Experiment)
plot (the results) on (graph paper)	zeichne (die Ergebnisse) auf (Millimeterpapier)
put ... into the correct order	bringe ... in die richtige Reihenfolge
sketch (the probable shape of ...)	skizziere (den möglichen Umriß ...)
state	nenne, zähle auf
study (picture 3 on p. 21)	schau Dir (Bild 3 auf S. 21) an
suggest	schlage vor
use the figures to explain ...)	verwende die Zahlen, um zu erklären ...
weigh	wiege
what experiments would you do to ...	welches Experiment würdest Du durchführen, um ...
what predictions can you make	welche Vorhersagen kannst machen/treffen
write an account of (your experiment)	schreibe ein Protokoll über (Deinen Versuch)

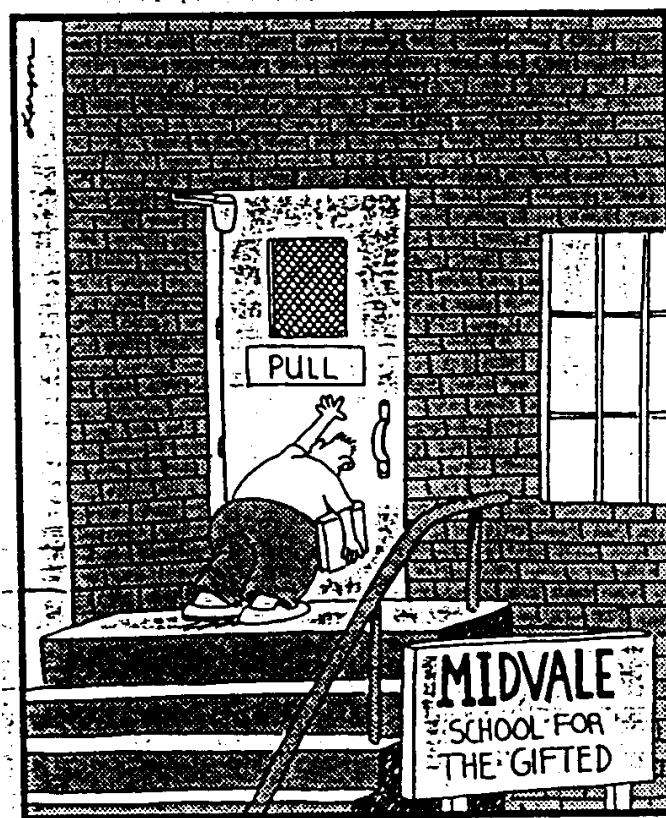
List of important expressions : EXPERIMENTS

add a drop of (water)	füge einen Tropfen (Wasser) zu
apply (a layer of glue) to a (leaf)	trage (eine Schicht Kleber) auf (das Blatt) auf
arrange it so that (you can watch it)	stelle es so hin, daß (Du es beobachten kannst)
attach (a strip of black paper) to (the leaf)	befestige (einen schwarzen Papierstreifen) an (dem Blatt)
boil (some water in a beaker)	bringe (etwas Wasser in einem Becherglas) zum Kochen
calculate (the average number of plants)	berechne (die Durchschnittszahl der Pflanzen)
carry out (experiments to prove it)	führe (Versuche) durch, (um es zu beweisen)
check (your plan) with (your neighbour)	vergleiche (Deinen Plan) mit Deinem Nachbarn)
choose (a place for your sample)	wähle (einen Platz für Deine Probe)
clamp (the test tube) to (a stand)	spanne (das Reagenzglas am Ständer) fest
collect	sammle
compare (the colours)	vergleiche (die Farben)
count (the number of bubbles)	zähle (die Zahl der Blasen)
cover (it) with (a coverslip)	bedecke (es) mit (einem Deckglas)
cut (the fruit) in half	schneide (die Frucht) in der Mitte durch
cut off (a leaf)	schneide (ein Blatt) ab
cut out (a small piece)	schneide (ein kleines Stück) heraus
darken (the room)	verdunkle (den Raum)
describe (your observation)	beschreibe (Deine Beobachtung)
detach (the leaf)	trenne (das Blatt) ab
determine (the amount of water)	bestimme/ermittle (die Wassermenge)
devise (an experiment)	denk (Dir einen Versuch) aus
dip (a strip of pH paper) into (it)	tauche (einen Streifen pH-Papier) hinein
dissolve (some solid glucose) in (water)	löse (etwas festen Traubenzucker in Wasser)



draw (some cells)	zeichne (einige Zellen)
drop (a small piece of liver) into (the tube)	tropfe/lasse (ein kleines Stück Leber in das RG) fallen
dry (it)	trockne (es)
feel (your pulse)	fühle (Deinen Puls)
fill (a plant pot) with (damp soil)	fülle (einen Blumentopf) mit (feuchter Erde)
find out (the correct name)	finde (den richtigen Namen) heraus
fix (the slide) with (the two clips)	befestige (den Objekttriger) mit (den beiden Klammern)
heat (it strongly)	erhitze (es stark)
illuminate (the plant with a lamp)	beleuchte (die Pflanze mit einer Lampe)
keep (the plant moist)	halte (die Pflanze feucht)
label (your drawing)	beschrifte (Deine Zeichnung)
lay (the grid) on (the ground)	lege (das Gitter) auf (den Boden)
leave (the tubes in a warm place)	laß (die RG) an (einem warmen Ort)
lift up (the coverslip)	hebe (das Deckglas) an
look at (the instructions)	sieh Dir (die Instruktionen) an
lower (the temperature)	setze/verringere/senke/lasse (die Temperatur) herab
make a list of (plants in a pond)	fertige eine Liste an von (Pflanzen in einem Teich)
mash (it with pestle and mortar)	zerstoße (es mit dem Stößel im Mörser)
measure (the fall in the level of the water)	miß (den Abfall der Wasseroberfläche)
measure out (20 cm ³ of water)	miß (20 cm ³ Wasser) ab
note (the colour)	notiere (die Farbe)
observe (the animals)	beobachte (die Tiere)
obtain (two test tubes)	beschaffe Dir (zwei RG)
pipette (a drop of water) into (the solution)	pipettiere (einen Tropfen Wasser) in (die Lösung)
place (the slide) on (the stage)	setze/stelle/lege (den Objektträger) auf (den Objektisch)
plan (an experiment)	plane (einen Versuch)
plot (these results) on (graph paper)	zeichne (diese Ergebnisse) auf (Millimeterpapier) ein
pour (water) into (a test tube)	fülle/gieße (Wasser) in (in ein Reagenzglas)
pull away / pull off (a leaf of the moss plant)	ziehe (ein Moosblättchen) ab
put (the plant) into (water)	setze/stelle/lege (die Pflanze) in (Wasser)
put (the plant) on (the paper)	setze/stelle/lege (die Pflanze) auf (das Papier)
read off (the volume of air in litres)	lies (das Luftvolumen in Litern) ab
record (any differences)	protokolliere/dokumentiere/trage/halte (jeden Unterschied) ein/fest
remove (a green leaf)	entferne/trenne (ein grünes Blatt) ab
repeat (the experiment)	wiederhole (den Versuch)
report on (your findings)	berichte über (Deine Ergebnisse)
rinse (your mouth) with (water)	spüle (Deinen Mund) mit (Wasser) aus
rotate (the nosepiece)	drehe (den Objektivrevolver)
seal (each tube) with (a stopper)	dichte (jedes RG) mit (einem Stopfen) ab

select (the strongest plant)	suche (die stärkste Pflanze) aus
set up (the test tubes as shown in the picture)	ordne/baue (die RG wie im Bild) an/auf
shake (the test tube)	schüttle (das RG)
slice (the carrot) in two	schneide (die Karotte) in zwei Teile
smear (the tissue) out	verschmiere/verwische (das Gewebe)
spread (the leaves) out	verteile (das Gewebe)
stir (it)	rühre (es) um
study (the changes)	beobachte/studiere/erforsche/untersuche/ prüfe (die Veränderungen)
take out (the microscope)	nimm (das Mikroskop) heraus
tear (the leaf) in two	reiß (das Blatt) etwa in der Mitte durch
test (the sample/leaf) for (starch)	untersuche/teste (die Probe/das Blatt) auf (Stärke)
use (the same method again)	benutze (noch einmal die gleiche Methode)
watch (carefully)	beobachte (sorgfältig)
weigh (the soil sample)	wiege (die Bodenprobe)
work out (the average number)	arbeite/rechne (die Durchschnittszahl) aus



Discussing photographs

Keep in mind:

- Photos must be studied to be fully understood!



the analysis of photographs	(across) the lower edge of the photograph
to analyse photographs	(across) the middle of the photograph
the interpretation of photographs	(across) the upper edge of the photograph
to interpret photographs	in the lower left-hand corner of the photograph
to read photographs	in the lower right-hand corner of the photograph
to study a photograph	the photo suggests (that) ...
to learn through photographs	to compare a photo with ...
to recognize features in the photographs	to respond to a photo
in the foreground of the photo	to explain what is going on in a photo
in the middle ground of the photograph	to search for information in a photo
in the background of the photograph	Are there any familiar things in the photo?

Discussing tables

Tables present data/figures in rows and columns.

Columns/rows have titles or are labelled.

Tables present/show:

actual figures	wirkliche/tatsächliche Zahlen/Werte
percentage rates	Prozentangaben
classes	Klassen/Qualitäten
index figures	Vergleich-/Meßzahlen
rounded figures (rounded up or down)	gerundete Zahlen/Werte
estimates	Schätzungen
totals	Summen/Gesamtwerte

- Figures can be positive or negative.
- Each set of data has a lowest (= minimum) and a highest figure (= maximum).

Understanding tables

	caption			
	label 1st column	label 2nd column	label 3rd column	label 4th column
label 1st row	223	56	78	32
label 2nd row	46	124	89	42
label 3rd row	119	345	167	75

- The figures in a table might show the size/number/change/development of...
- A change can be absolute (actual figures) or relative (percentage figures).
- Changes can be major or minor.
- The difference can be clear or slight.
- Figures do not always sum up to 100 % due to rounding. The number can be expressed as a percentage of the total.

Useful phrases for working with tables

Look at the heading/caption of the table.	Betrachte die Überschrift/den Untertitel der Tabelle.
What does the table present/show?	Was zeigt die Tabelle? (Was sagt die Tabelle aus?)
Compare/study the different sets of data.	Vergleiche/betrachte die verschiedenen Daten (-gruppen).
Compare the results with your other findings.	Vergleiche die Ergebnisse mit deinen anderen Befunden.
Calculate/find the arithmetic average of ...	Berechne/ermittle den Mittelwert (Durchschnitt) von ...
Name the extremes of ...	Benenne/nenne die Extremwerte von ...
Explain the deviation (from the average).	Erkläre die Abweichung (vom Durchschnitt).
Add up/find the sum/sum up all of the 12 given numbers and divide the result by 12.	Addiere alle 12 gegebenen Zahlenwerte und dividiere das Ergebnis durch 12.
Find suitable headings for the groups/ columns of data.	Finde passende Überschriften für die Datengruppen/-listen.
Sum the values of the first and second column/row.	Addiere die Werte der ersten und zweiten Spalte/Reihe.
Copy and complete the table.	Kopiere (schreibe ab) und vervollständige die Tabelle.
List the five most important ... in rank order and score them.	Liste die fünf wichtigsten ... als Rankfolge auf und bewerte sie.
What does this figure reveal about... ?	Was zeigt/sagt diese Zahl über ...?
In which way do the data support your finding/theory/hypothesis?	Inwiefern unterstützen die Daten deine(n) Befund/Theorie/ Hypothese?

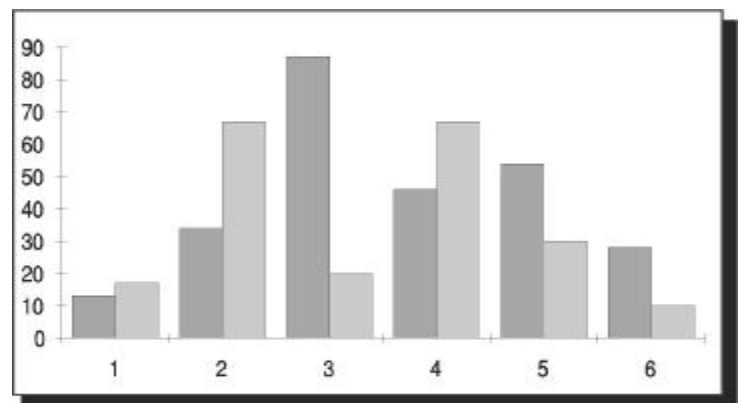
Charts and diagrams

There are bar charts/graphs or histograms, line graphs and pie charts. Each graph must have a heading/title or caption. It must be labelled to make sure whether the data/figures are presented in actual numbers/ percentage terms/totals or estimates.

The line graph/bar chart:

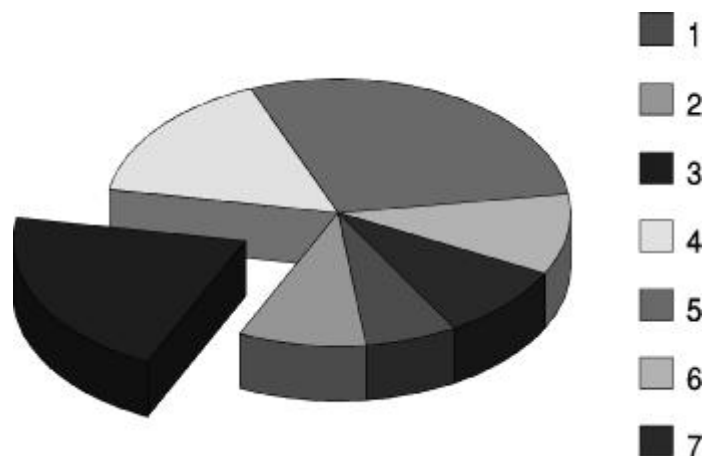
informs the reader about	tries to give the reader an idea of ...
gives/offers/provides information about/ on ...	allows to gain insight into ...
shows the development of ...	illustrates the problem of ...

- Bar charts/bar graphs are graphical representations of the differences/ similarities between various types of ... at a certain point of time.



Data are presented in bars/columns showing the total number/overall number of ...	Daten werden in Säulen dargestellt, die die Gesamtzahl von ... zeigen.
The bar chart uses/shows two axes (x- and y-axis).	Das Säulendiagramm nutzt/zeigt zwei Achsen (x- und y-Achse).
The bars indicate the (relative) size of/the amount of/the growth of/the change of ...	Die Säulen zeigen die (relative) Größe/das Wachstum/die Änderung von ...
The bars show an increase/decrease of ...	Die Säulen zeigen einen Anstieg/Abfall von ...
Line graphs represent developments covering a period of time.	Liniendiagramme zeigen Entwicklungen über eine Zeitspanne.
The graph rises/falls more or less slowly/ sharply ...	Der Graph steigt/fällt mehr oder weniger langsam/schnell (abrupt) ...
It rises steadily between ... and ...	Er steigt stetig zwischen ... und ...
It remains constant/stays at the same level/ does not vary.	Er bleibt konstant/verbleibt auf dem gleichen Niveau/verändert sich nicht.
The line/curve is plotted by joining the points.	Die Linie/Kurve ist durch verbundene Punkte gezeichnet.
Pie charts are graphical representations of segments/sectors or parts of a whole.	Tortendiagramme sind graphische Darstellungen von Segmenten/Sektoren oder Teile des Ganzen.
The whole circle/pie stands for 100 per cent.	Der gesamte Kreis steht für 100 Prozent.
It is subdivided into ... segments, which represent ...	Er ist unterteilt in ... Segmente, die ... repräsentieren.

The segments give an idea of the proportion of ...	Die Segmente lassen das Verhältnis von ... ahnen.
The pie chart shows that about a quarter/ a third of ... /10-20 % of ... are ...	Das Tortendiagramm zeigt, daß etwa ein Viertel/ein Drittel/10-20% von sind.
Comparing the two pie charts you can see changes in the size of/number of ... between the years ... and ...	Vergleicht man die beiden Tortendiagramme, so kann man die Veränderung der Größe/der Anzahl von ... sehen zwischen den Jahren ... und ...
The difference in size of the segments representing ... indicates ...	Der Unterschied in der Größe der Segmente, die für ... stehen, zeigt ...



Useful phrases for working with charts and graphs

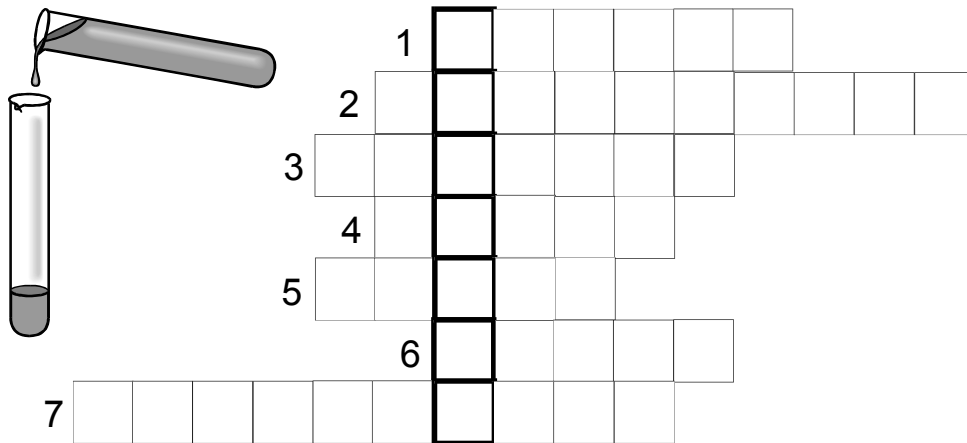
- Look at the heading/caption/title of the chart/ diagram.
- Draw a line/bar chart with the data from the table/text.
- What does the diagram present/show?
- Label the diagram/add labels to the diagram.
- Use the copies of the blank graph to plot the data for ...
- Read the diagram/graph.
- Describe the curve.

Worksheet

A Science Lab

Puzzle

Write down the correct expressions and find the solution:



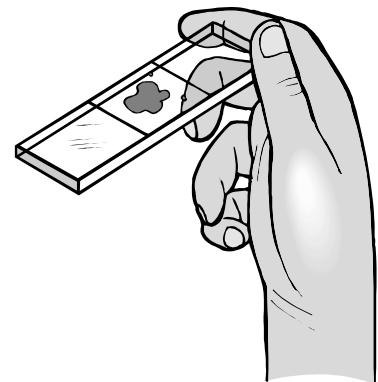
SOLUTION: _____

- 1 the inventor's name of a small gas burner
- 2 instrument to see very small objects
- 3 piece which fits into the top of a bottle, jar or test tube
- 4 thing you put a very small specimen on
- 5 not a chair but a ...
- 6 paper with small squares printed on it
- 7 piece of glass which makes objects appear bigger than they usually are; ... glass

Mixed Letters

Put the letters in the correct order and write down the word you've found.

- EKBARE -
- UBET -
- TPEIPET -
- NTOGS -
- EZTEWRE -
- LNUNFE -
- CROFPSE -
- MERTI -
- KFASL -
- LACES -

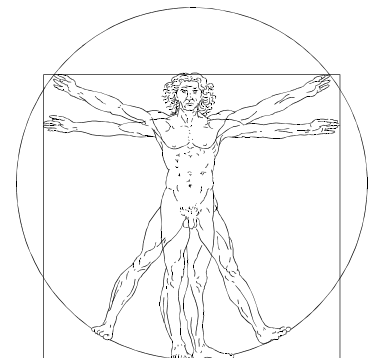
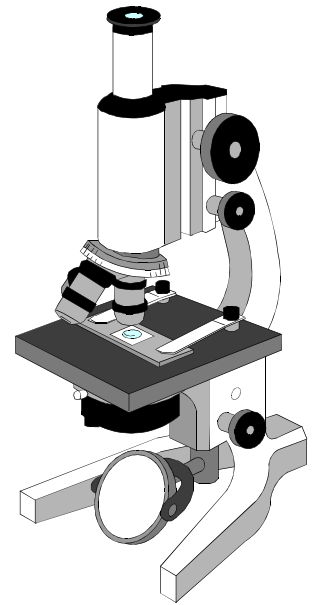


Worksheet

You are the scientist

Find the 20 words that have to do with the microscope!

K Q H N K X D C V K D T U R R E T C H V
 W U C A U M W E Y D N A D J U S T E R P
 S L I D E J H K G R R N D H C M E D M G
 V J W Y X P U U Q N R J P B M O N E I M
 B P D S C E Y E P I E C E U I Q R X R A
 S P S W I T C H Z R M E N Q C Q S W I G
 J Y L X Q C O A R S E E G B R F P F S N
 U B L V H S P G I M Y D W W O J E W G I
 Y Y D Q P Q W P L Z V N N O S N C K U F
 F M K E T M J L C M G R Z O C Y I N L I
 O L M T D B M A X U O Z E W O K M O W C
 C B U L B T P T L V X D H G P E E B G A
 U P R M Z D H F B M W S W F E X N Y M T
 S H G G M Y H O V G B W F S T A G E A I
 C O N T R O L R V L V D I A O Y G R G O
 I Y A D I M K M L E N S E U Z L J R N N
 E B U C Y B G F H X Z C H Q P S G F I H
 M L Y O B J E C T I V E X G K X C N F D
 H R Z C X Q F U H Y M O T L P T J I Y B
 W C Q L X B C S F G C L I P V D J L N C

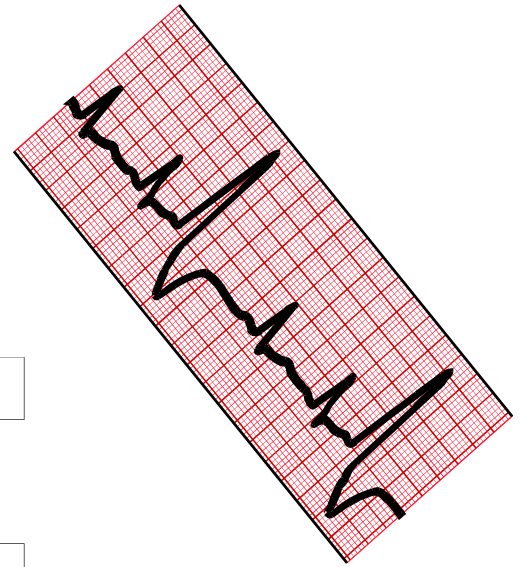
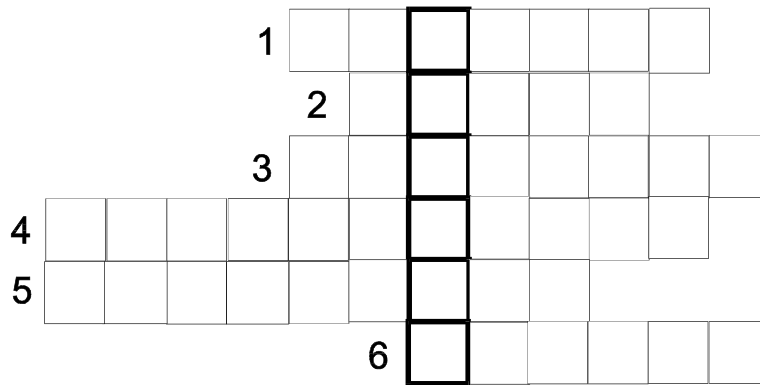


KNOB	STAGE	BULB	MICROSCOPE
MAGNIFY	EYEPIECE	COARSE	FOCUS
ADJUSTER	SPECIMEN	CLIP	TURRET
SWITCH	MAGNIFICATION	LENS	SLIDE
IRIS	PLATFORM	CONTROL	OBJECTIVE

Worksheet

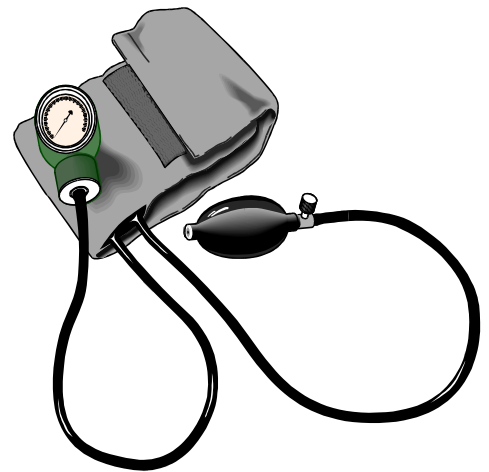
TASKS

Find the verb and the solution!



SOLUTION: _____

- 1 to put forward a plan or idea for s.o. to think about
- 2 to check how heavy s.th. is
- 3 to think carefully; to take all facts into account
- 4 to try to find out all facts about s.th.
- 5 to make, create or build s.th.
- 6 to draw quickly without a lot of details



EXPERIMENTS

Find the correct prepositions!

- 1 You dissolve the pill _____ water.
- 2 She attached the label _____ the wrong plant.
- 3 Pipette the stain _____ water!
- 4 He fixed the label _____ glue.
- 5 Take _____ your folders!
- 6 Seal each bottle _____ a cork!
- 7 She measured _____ the correct amount of water.
- 8 I forgot to report _____ my results.
- 9 Test the food _____ sugar!
- 10 Check your solutions _____ your partner!

