

# Language and texts

The importance of language in scientific contexts

# Identifying language for content learning

Which language?

1. Subject-specific language  
Words you can't really do without
2. General academic language  
Language of learning
3. Peripheral language  
Classroom 'chat'

What do these numbers relate to?

750,000 –

650,000 –

40,000 – 45,000 –

Every 12th –

2,500 –

7,500 –

10% –

750,000 – words in English

650,000 – words in OED

40,000 – 45,000 – used by average speaker

Every 12th – “the”

2,500 – 80% of all words we use

7,500 – 90% of all words we use

(star words \*\*\* 2,500; \*\* 2,500-5,000; \* 5-7,500)

10% - the rest, topic specific (black words)

# Curriculum discourse analysis

Identify the 'black' words in this passage. There are 12.

Food and water are sources of infection. Raw food is covered in microorganisms. Most are harmless or do the body good. They grow in our intestines and protect them from more harmful germs, but others cause disease, especially if food's been contaminated by sewage or animal waste, or hasn't been cooked properly. Contact with animals also exposes us to new microorganisms. A bite from an infected dog could lead to rabies, for example. While cleaning out a lizard's cage could lead to salmonella.

## The 12 'black' words

Food and water are sources of infection. Raw food is **covered** in **microorganisms**. Most are harmless or do the body good. They grow in our **intestines** and protect them from more harmful **germs**, but others cause disease, especially if food's **been contaminated** by **sewage** or animal waste, or **hasn't** been **cooked** properly. Contact with animals also exposes us to new microorganisms. A bite from an **infected** dog could lead to **rabies**, for example. While cleaning out a lizard's cage could lead to **salmonella**.

## Vocabulary according to star rating frequency.

Food and water are sources of infection. Raw food is covered in microorganisms. Most are harmless or do the body good. They grow in our intestines and protect them from more harmful germs, but others cause disease, especially if food's been contaminated by sewage or animal waste, or hasn't been cooked properly. Contact with animals also exposes us to new microorganisms. A bite from an infected dog could lead to rabies, for example. While cleaning out a lizard's cage could lead to salmonella.

\*\*\* \*\* \*

# Concordancing software


- SCP - Simple concordancing programme

[www.textworld.com/scp](http://www.textworld.com/scp)

- SWF – Searching for words in files

<http://www.factworld.info/en/Language-Support-Writing>





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- Academic vocabulary has more cognates than everyday language or non academic one.

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- [https://learnzillion.com/lesson\\_plans/5735-classify-two-dimensional-figures-by-examining-their-properties#fndtn-lesson](https://learnzillion.com/lesson_plans/5735-classify-two-dimensional-figures-by-examining-their-properties#fndtn-lesson)

# Task – Take a look to this list of words

Triangle

Quadrilateral

Pentagon

Edges

Vertex/ Vertices

Height

Axis

Simmetry

Square

Right angle

Equilateral

Isosceles

Escalene

Degree

# Task – Take a look to this list of words

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Pentagon  
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What links and relationships can you see between the words in the list?

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geometry

What links and relationships can you see between the words in the list?

# Task – Take a look to this list of words

types

igneous

sedimentary

metamorphic

extraction

drilling

quarrying

mining

shaft

open cast

chemical

mechanical

erosion

deposition

mass movement

soil

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# Geography Rocks

What links and relationships can you see between the words in the list?



# 2 General academic language

- The language of **thinking** (science across):  
compare/contrast, hypothesize...

## 2 Classifying

### Statements

#### Teacher questions

How would you classify...?  
How many kinds of ...are there?  
Who can classify...?

There are	three	kinds types forms classes categories	of	.....
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.....	<i>fall</i>		<i>into</i>	<i>three</i>	<i>kinds types classes categories</i>
	<i>can be</i>	<i>divided classified</i>			

We/you/one can classify ... according to ...criteria  
This class has...characteristics/features

**Task 1. Find and underline all of the verbs in the text which are used for talking about 'structure, function and location' of cells and tissues.**

**Task 2. Find specific black words**

# What are living things made of?

## *The Structure of Simple Cells*

Today, scientists using powerful microscopes are able to observe what makes up cells. They have discovered that every cell is a self-contained unit and that all cells are made up of a substance called *protoplasm*.

Protoplasm is the basic living material. It is always made up of carbon (C), oxygen (O<sub>2</sub>), hydrogen (H), nitrogen (N) and very often sulphur (S) and phosphorus (P). Protoplasm is usually colourless and contains a large amount of water. It feels and looks like jelly. Only living things can make new protoplasm or repair damaged protoplasm.

Cells are made up of two kinds of protoplasm: the nucleus and the cytoplasm. They are separated from their environment by an outer cell membrane, which restricts the passage of materials in and out of the cell.

**Task** Find and underline all of the verbs in the text which are used for talking about 'structure, function and location' of cells and tissues.

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Cells are made up of two kinds of protoplasm: the **nucleus** and the **cytoplasm**. They are separated from their environment by an outer **cell membrane**, which restricts the passage of materials in and out of the cell.

# Discourse analysis

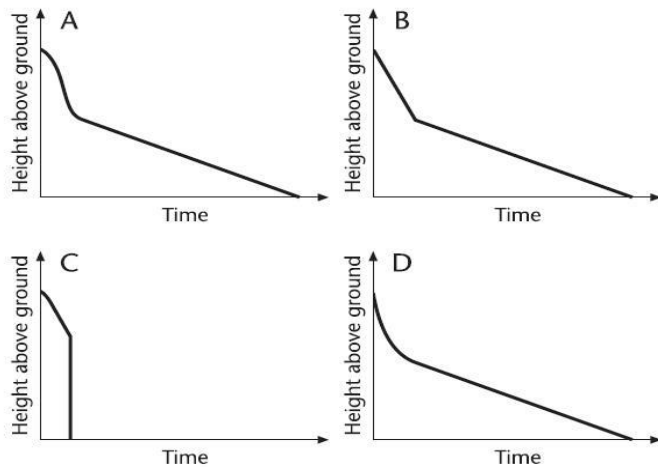
- General academic school language
- Awareness of ALL the language
- Opportunities for student access (building background)
- Embed the language in the content to contextualize.

# 3 Peripheral language

## 5 Generate and solve problems with functions and graphs

- 5.1** Use a graphics calculator to plot and interpret a range of functional relationships, some continuous and others discontinuous, arising in familiar contexts.

*Ahmed does a parachute jump. He jumps out of the plane and falls faster towards the ground. After a few seconds his parachute opens. He slows down and then falls to the ground at a steady speed. Which of these graphs shows Ahmed's parachute jump? Explain why each of the other graphs is wrong.*



# Word problems

- <http://www.teach-nology.com/worksheets/math/word/>
- <http://www.kidzone.ws/math/wordproblems.htm#gr5wp>
- <http://www.primaryresources.co.uk/maths/mathsD1.htm>
- All grades:  
[http://www.homeschoolmath.net/online/problem\\_solving.php](http://www.homeschoolmath.net/online/problem_solving.php)
- <http://www.mathstories.com/strategies.htm>

# Virtual laboratories:

- [www.chem.iastate.edu/group/Greenbowe/sections/projectfolder/animationsindex.htm](http://www.chem.iastate.edu/group/Greenbowe/sections/projectfolder/animationsindex.htm)
- Experilabs: <http://library.thinkquest.org/22732/index2.htm>
- [www.cerlabs.com/equip\\_sims.html](http://www.cerlabs.com/equip_sims.html)
- [www.rit.edu/~uphysics/uncertainties/Uncertaintiespart1.html](http://www.rit.edu/~uphysics/uncertainties/Uncertaintiespart1.html)
- <http://www.virtlab.com/main.aspx>
- <http://www.colorado.edu/physics/2000/index.pl?Type=TOC>
- <http://physlab.net>
- [http://phet.colorado.edu/new/simulations/index.php?cat=Top\\_Simulations&st=0](http://phet.colorado.edu/new/simulations/index.php?cat=Top_Simulations&st=0)
- [www.gifted.uconn.edu/siegle/research/Normal/stdexcel.htm](http://www.gifted.uconn.edu/siegle/research/Normal/stdexcel.htm)

# English for specific purposes:

- General:
- <http://www.uefap.com/>
- <http://www.onestopclil.com/>
- <http://www.onestopenglish.com/>
- Scientific discourse, vocabulary and connectors:
- [www.scienceacross.org](http://www.scienceacross.org)
- [www.factworld.info](http://www.factworld.info)



# Language as classroom environment

- accessible input (adapt when needed)
- rich input
- scaffolded
- semi-scripted ( to develop thinking skills)
  - LESSON EXAMPLE: MEASUREMENTS



Is CLIL the only experience relating content and language?



Is CLIL the only experience relating  
content and language?

SIOP