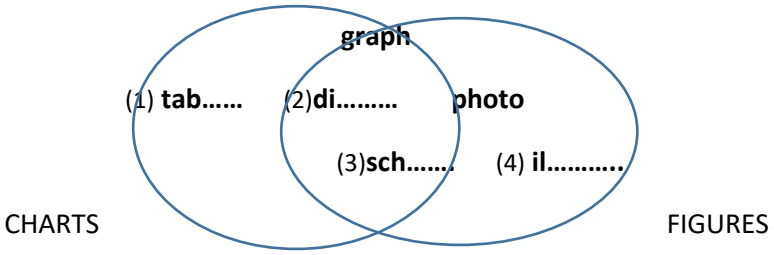
Describing a process, Rivers

1. Warm-up

- Which visual have you produced recently – what did it show?
- What do you think is the most famous example of a graph in science?
  (https://www.youtube.com/watch?v=9BkbYeTC6Mo 0.38 – 1.40)

2. How to write a paper in scientific journal style: tables and figures
http://abacus.bates.edu/~ganderso/biology/resources/writing/HTWtablefigs.html#legends

1. Complete the missing words for types of visuals:



2. Are the words 'chart' and 'figure' used to mean the same or different types of visuals?
3. What is a 'photograph'?
4. When referring to figures and tables in the text, are the words abbreviated?
5. If you wish to show a trend or a relationship between sets of values, which of the above types of visuals you should use?
6. Do you number tables and figures independently (Table 1, Figure1) or continuously (Table 1, Figure 2) in the sequence?
7. Any table or figure must be described by its legend (i.e. caption). Where are the legends placed?

3. Point bar deposits https://www.youtube.com/watch?v=k1ilDHpDBFA 0-2.55

These are words and phrases related to rivers. Check whether you understand them.

river bend *meandering* *outside/inside bank* *flow velocity*

deposition *erosion* *high flow conditions*

Listen and draw a scheme of what happens with the river bend.
What process does the speaker describe? …….. *of the bend*

4. Description of the process: Use all the words from the box to complete the gaps in the text.

abandoned	*course*	*crescent*	*current*	*discharge*
friction	*migrate*	*velocity*	*bend*	*flood*

A meander has an asymmetrical cross-section formed by erosion on the outside **1**……., where discharge and **2**…….. are greatest and friction is at a minimum, and deposition on the inside, where **3**…….. and velocity are at a minimum and **4**…….. is at its greatest. Material deposited on the convex inside of the bend may take the form of a point bar. As erosion continues on the outer bend, the whole meander tends to **5**……. slowly downstream. The deposited material contributes to the formation of the flood plain. Over time, the sinuosity of the meander may become so pronounced that, during a **6**……., the river cuts through the narrow neck of land in order to shorten its **7**…… . Having achieved a temporary straightening of its channel, the main **8**…….. will then flow in mid channel. Deposition can now take place next to the banks and so, eventually, the old curve of the river will be **9**……., leaving a **10.**…….. -shaped feature known as an oxbow lake or cutoff.

D. Waugh: Geography, An Integrated Approach, 2nd edition, p.74

5. Work in pairs and explain how the oxbow lake is formed.

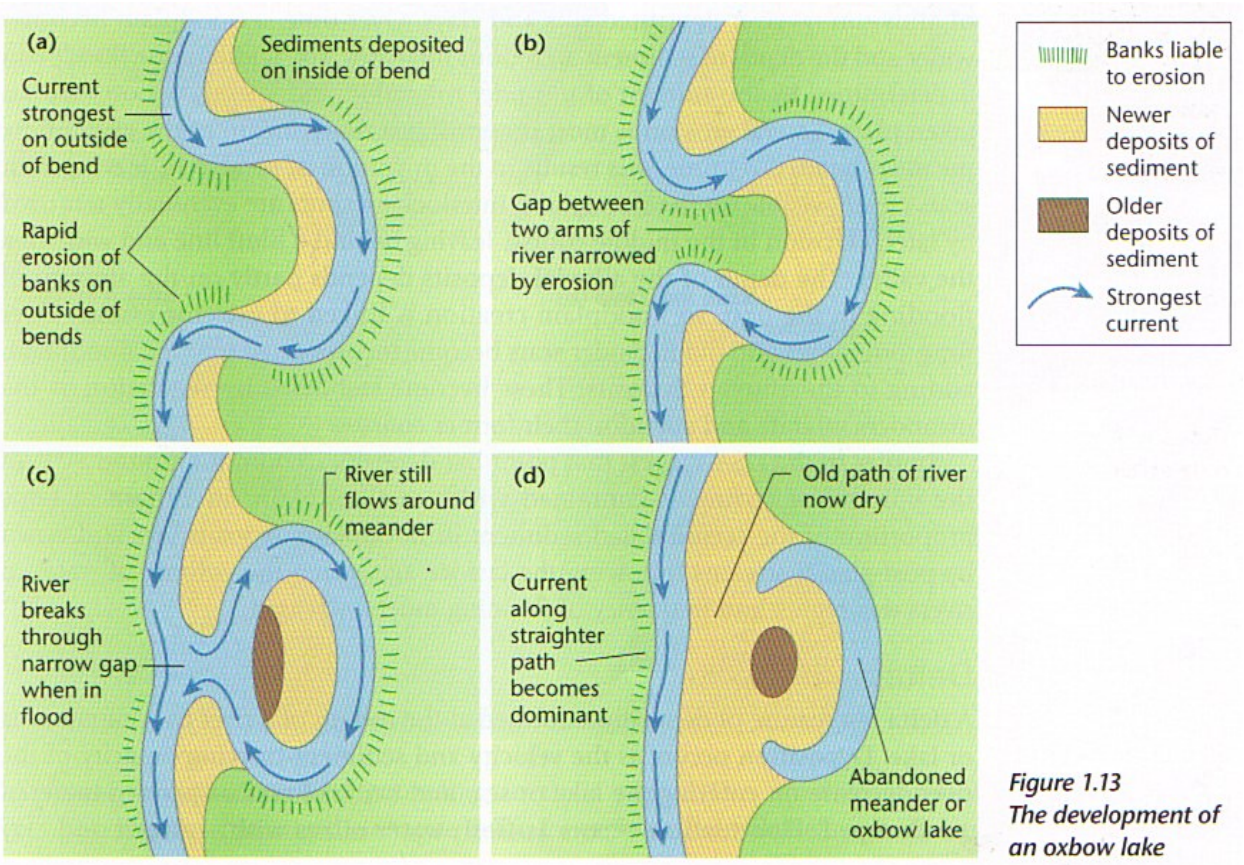


Figure 1.13 The development of an oxbow lake

6. Writing captions: Remove four words from each sentence to get the right form of a caption.

A) *The figure shows the copper concentration in the soft and exoskeleton tissues of four shrimp species.*

B) *The table presents a comparison of the physical and chemical characteristics of the hydrothermal fluids at Menez Gwen, Lucky Strike and Rainbow (adapted from Douville et al., 2002).*

7. Vocabulary

Look at the visuals. Complete the labels (1–16) using the words in the box.

Tables

column row

1 _____
2 _____

Site	Ria Formosa 37°03'N; 07°47'W	Rainbow 36°13'N, 33°54'W	Seawater
T (°C)	17.3[a]	365[c]	–
pH	8.28[a]	2.8[c]	7.8
H_2S (mv)	–	1.0[c]	~0
CO_2 (mv)	–	< 16[c]	–
CH_4 (mv)	–	2.2–2.5[c]	~0
Cd (nv)	0.9 – 4.5[a]	130[c]	0.7
Cu (μv)	0.02 – 0.05[a]	140[c]	0.0033
Zn (μv)	0.02 – 0.03[a]	160[c]	0.028
Fe (μv)	8 – 52[b]	24000[c]	0.0045
Mn (μv)	2.5 – 6.3[b]	2250[c]	0.0013
Cl (mv)	–	750[c]	546
Co (μv)	–	13[c]	<2
Ag (nv)	–	47[c]	0.023
Ni (μv)	–	3[c]	<2
Si (mv)	–	6.9[c]	<0.2

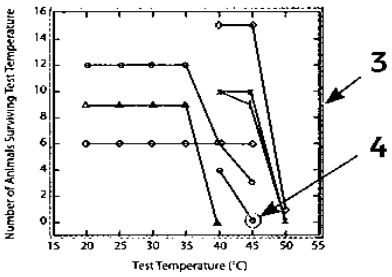
[a]Instituto Hidrográfico (1998). [b]Caetano *et al.* (1997). [c]Douville *et al.* (2002).

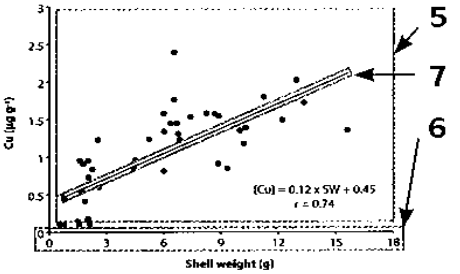
1 2

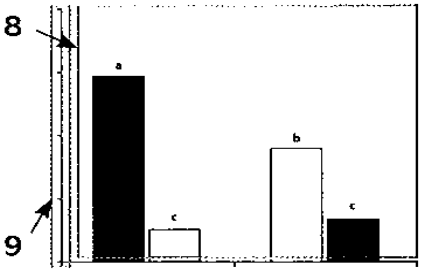
Two-variable graphs

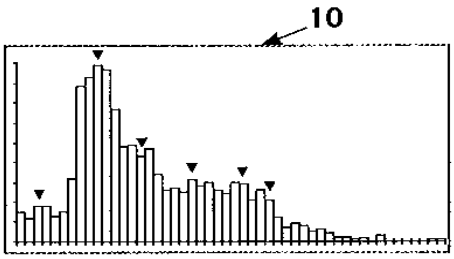
bar chart histogram
line graph line of best fit
point scatter plot x-axis
y-axis

3 _____
4 _____
5 _____
6 _____
7 _____
8 _____
9 _____
10 _____





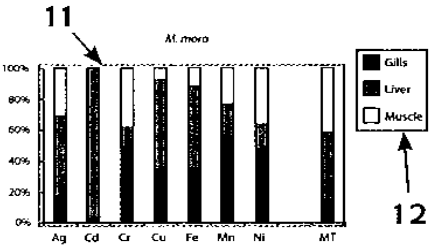


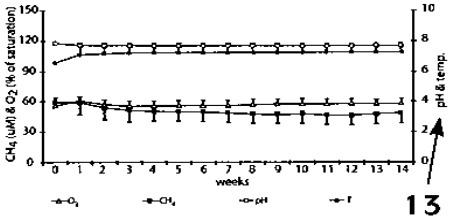


Three-variable graphs

key label
stacked bar chart

11 _____
12 _____
13 _____

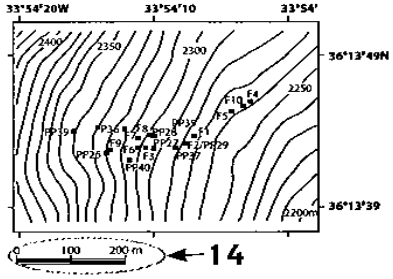




Other

caption pie chart scale

14 _____
15 _____
16 _____



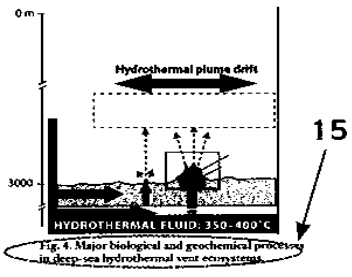
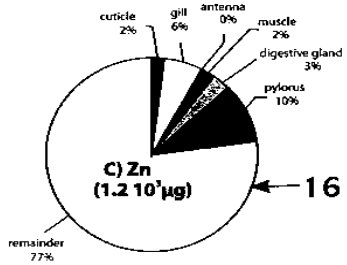


Fig. 4. Major biological and geochemical processes in deep-sea hydrothermal vent ecosystems.



8. Complete the sentences below using the words below to describe the purpose of a chart.

bar chart *diagram* *histogram* *line graph* *map* *pie chart* *scatter plot* *stacked bar chart* *table*

It is best to use a …

a) _____ or _____ to show a comparison between items

b) _____ to show a correlation

c) _____ to describe a location

d) _____or a _____ to show proportions of a whole

e) _____to describe a structure

f) _____ or a _____ to show trends

Source: Armer, Tamzen: Cambridge English for Scientists, CUP, 2011, p.58

9. Think about a topic for your JA002 exam presentation. What diagram or picture could you use to explain an important point in the topic?