Number, quantity, degree and intensity

VOCABULARY PRACTICE

ADVANCED | C1

Name: _____ **Date:** _____

1 Match each advanced quantitative concept with its meaning.

1 magnitude	____	a proportion of a population affected at a given time
2 incidence	____	b weakening in force, intensity or value
3 prevalence	____	c strength or practical importance of an observed difference
4 concentration	____	d level beyond which a response changes markedly
5 saturation	____	e number of new cases occurring within a period
6 attenuation	____	f relationship between exposure amount and resulting change
7 amplification	____	g increase in strength or intensity
8 threshold effect	____	h amount of a substance within a defined volume
9 dose-response relation	____	i overall size or extent of a quantity
10 effect size	____	j state in which no more can be absorbed or added effectively

2 Complete the quantitative-science collocations.

amplification | attenuation | concentration | effect | magnitude | prevalence | response | threshold

1 order of _____

2 a dose-_____ curve

3 exceed a critical _____

4 estimate disease _____

5 a high _____ of particles

6 signal _____

7 noise _____

8 a negligible _____ size

3 Choose the concept that best captures the distinction.

1 New cases during one year: *incidence / prevalence*.

2 All current cases at one point: *prevalence / incidence*.

3 A signal becomes weaker in transmission: *attenuation / amplification*.

4 Response rises sharply after a limit: *threshold effect / saturation*.

5 More exposure produces a larger response: *dose-response relation / concentration*.

6 The practical strength of a difference: *effect size / magnitude order*.

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4 Complete the quantitative review with terms from the box.

amplification | attenuation | concentration | dose-response relation | effect size | incidence | magnitude | prevalence | saturation | threshold effect

Researchers distinguish **1** _____, the number of new cases, from **2** _____, the proportion currently affected. Exposure may be expressed as a **3** _____, and its link to outcome as a **4** _____. A sudden change beyond a critical level is a **5** _____. At very high levels, **6** _____ may occur, so further input has little impact. During transmission, **7** _____ weakens a signal whereas **8** _____ strengthens it. The overall scale is its **9** _____, while practical importance is summarised by **10** _____.

5 Read the text and answer the questions concisely.

Why relative change can mislead

A relative increase can sound dramatic when the starting value is very small. If a risk rises from one case in ten thousand to two, it has doubled, yet the absolute increase is only one additional case per ten thousand. Conversely, a modest percentage change applied to a common outcome may affect many people. Responsible reporting therefore provides baseline values, absolute differences and an indication of uncertainty rather than relying on a single impressive percentage.

1 When can relative increase sound dramatic? _____

2 What example of doubling is given? _____

3 What is the absolute increase? _____

4 When may a modest percentage affect many people? _____

5 Which three elements should reporting provide? _____

6 What should not be used alone? _____

6 Paraphrase using the expression in capitals.

1 The signal weakened as it travelled. **ATTENUATION** _____

2 New cases rose during the period. **INCIDENCE** _____

3 The response changed only after a critical level. **THRESHOLD** _

4 The difference had little practical importance. **EFFECT** _

OVER TO YOU

Write a **160-190 word** critique of a quantitative claim. Address baseline, absolute and relative change, magnitude, uncertainty and practical importance.

[ ] Use at least ten target terms or collocations. [ ] Separate statistical from practical importance. [ ] Qualify conclusions carefully.

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ANSWER KEY

1 Advanced quantitative concepts

1 **i** 2 **e** 3 **a** 4 **h** 5 **j** 6 **b** 7 **g** 8 **d** 9 **f** 10 **c**

2 Quantitative-science collocations

1 **magnitude** 2 **response** 3 **threshold** 4 **prevalence** 5 **concentration** 6 **attenuation** 7 **amplification** 8 **effect**

3 Conceptual distinctions

1 **incidence** 2 **prevalence** 3 **attenuation**
4 **threshold effect** 5 **dose-response relation** 6 **effect size**

4 Quantitative review

1 **incidence** 2 **prevalence** 3 **concentration** 4 **dose-response relation** 5 **threshold effect**
6 **saturation** 7 **attenuation** 8 **amplification** 9 **magnitude** 10 **effect size**

5 Reading - suggested answers

1 When the baseline is very small. 2 One case in 10,000 rising to two. 3 One extra case per 10,000.
4 When the outcome is common. 5 Baseline, absolute difference and uncertainty. 6 A single impressive percentage.

6 Paraphrasing - possible answers

1 The signal underwent **attenuation**. 2 The **incidence** rose. 3 There was a **threshold effect**. 4 The **effect size** was negligible.

Over to you: Answers will vary. Check quantitative reasoning, baselines, uncertainty and practical interpretation.