Exponential growth and decay

Teacher guidance

**Overview of task**

This task introduces students to exponential growth and decay. It relates to compound interest for savings and depreciation of assets (e.g. cars).

**Mathematical strands:** Number, Finance, Algebra, Graphs

**Prior knowledge**

An appreciation of percentages is required.

**Relevance to Core Maths qualifications**

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| **AQA** | **C&G** | **Eduqas** | **Pearson/ Edexcel** | **OCR** |
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**Suggested approaches**

Suitable for class discussion to introduce exponential growth and decay. The task would then be suitable for small group or individual work, according to students’ preferences.

**Resources/documentation**

In addition to this teacher guidance there are:

* Information sheets on exponential growth and decay, with examples and questions posed relating to the shape of the graph (pdf)
* Prepared templates for students to enter different y-values and sketch graphs
* Repeated percentage change worksheet: compound interest (illustrated with ISAs), depreciation (illustrated with cars).
* Geogebra worksheets.

**Relevant digital technologies**

Spreadsheet for modelling; graphing software/Geogebra/calculator

**Possible extensions**

For related work, see the Core Maths Masters Subject Support, Strand: Graphs, Units 4 and 5. Possibly link with Cormathzadrine task for a further example of exponential decay.

**Acknowledgement**

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