

Discovering Metals



Before Reading

Motivation / Purpose

The purpose of this text is to provide information about the discovery and use of metals, and the impact this had on the development of communication and technology. This text links with the *Science* theme *Natural and Processed Materials*.

Text Type

Draw students' attention to the:

- title
- photographs
- fact boxes
- glossary.

Ask, 'What type of book is this?' (Factual). How do you know? What type of factual book is this? (Report). Encourage students to refer to the title and look at the cover photographs to confirm this is a factual text.

Visual Literacy

Browse the first few pages of the text and discuss the effect of the borders, text panels and colours used in the design. How do these relate to the subject matter?

Background Knowledge

Ask students to make a list of known metals. Talk about how minerals are extracted from the ground. Ask students to suggest where and how metals were first discovered. Brainstorm how these were used and how metals have contributed to our modern day lives.

Phonological Awareness

Make sure students know the following phonological patterns:

- **long e:** history (p.4), people (p.4), Guinea (p.5), communities (p.15)
- **/air/:** their (p.4), therefore (p.7)

After discussing these letter combinations, ask students to think of a sentence using words which have different letters making the same sounds. Ask them to identify the words and say which letters make the common sound in each word (e.g. The theme of the text was about the history of the use of metals).

Locate words in the text that end in 'e', but drop the 'e' to add *-ing* (e.g. use – using; make – making).

Vocabulary

alloy, archaeologists, casting, conditions, copper, durable, essential, flexibility, history, impact, ornaments, plentiful, properties, recently, refined, utensils

High Frequency Words

change, coins, discovered, easier, history, metal, stone, tools, trade, weapons

Make multiple copies of these and other known high frequency words on cards. Distribute five cards to each player and play 'Fish', using the left over cards as the central pool. The student with the greatest number of pairs when the pool is used up is the winner.

During Reading

Vocabulary in Context

Locate examples of words ending in *-ly* in the text. Explain to students that these words are adverbs of manner or time – that is, they tell *how* or *when* a verb is being done (e.g. recently, mostly, really, easily, quickly, secondly, especially).

Study the words 'affect' and 'effect'. Help students to understand that *affect* means to influence, while *effect* means a result or overall impression.

Checking for Meaning

Literal:

When did the Stone Age start? (More than one million years ago)

What was most likely the first metal discovered by humans? (Gold – it was first used about 8000 years ago.)

What do we call a mixture of two or more metals? (An alloy)

Inferential:

Why did the discovery of copper have a greater impact on people's lives than gold?

Why did bronze make better weapons than copper?

Why was iron cheaper to use than bronze?

Make sure students understand the difference between literal and inferential information.

Response:

What everyday items do we use that are made from metal?

How does this affect the way we live?

What will be used to replace metals when their supply is used up?

Grammatical Patterns

Make sure students understand the following components of a report:

- Opening general statement defining the topic: *The Stone Age ... out of stone* (p.4)
- Passages of information relating to the discovery of various metals and the impact these had on developing societies: (pp.5–23)
- Use of general nouns: *weapons* (p.4), *copper* (p.5), *archaeologists* (p.9), *moulds* (p.11), *communities* (p.15), *temperature* (p.18), *alloys* (p.23)
- Use of relating verbs to describe features: *The Iron Age is the name given to ...* (p.18)
- Use of action verbs to describe behaviour: *replace* (p.4), *discovered* (p.6), *crumbled* (p.9), *observed* (p.10), *imported* (p.17), *changed* (p.20)
- Use of technical terms: *Stone Age* (p.4), *archaeologists* (p.9), *kiln* (p.9), *ore* (p.9), *alloy* (p.13), *durable* (p.15), *smelting* (p.22), *casting* (p.22)
- Use of paragraphs with topic sentences to organise information: *Gold was probably the first metal to be discovered ...* (p.6), *Copper was discovered ...* (p.8), *Iron was first used ...* (p.18)
- Use of the repeated naming of the topic as the beginning focus of the clause: *Tools made from bronze* (p.15), *Bronze became a very prized product* (p.16)

Fluency / Punctuation Patterns

Reinforce the use of commas to assist students to read multiple phrases and clauses with appropriate fluency so as to maintain the meaning of the sentence.

These punctuation patterns occur in the text:

- Capital letters are used to refer to specific periods in history: *Stone Age* (p.4), *Bronze Age* (p.14), *Iron Age* (p.18), *Industrial Revolution* (p.22)
- Numerals are used to represent large numbers: *6000 years ago* (p.5), *8000 years ago* (p.6), *1062°C* (p.18)
- The abbreviation '°C' is used to represent the words 'degrees Celsius': *1062°C* (p.18)
- Commas are used to separate additional pieces of information which add meaning to the sentences: *Sometimes, copper was found by itself, but it was usually found within stones, called ore.* (p.9)

Critical Literacy

What view of the world is this text presenting? What kind of language is used? How does this help make the text meaningful? How else could his text have been written or presented?

Linking Visual and Written

Why do most of the photographs in this text show objects that are old? How do these photographs link to the subject matter of the text?

Look at the old metal coins on page 21. How do you think they were made? Why do they look so different to modern-day coins?

After Reading

Using the fact box on page 18, construct a simple graph to visually represent the °C at which various metals melt.

Construct a timeline of significant events and stages in the discovery of metals, from the Stone Age to the current time.

Activities

Students will:

- match sentences with similar meanings and locate page references
- use knowledge of spelling generalisations to complete new words
- write vocabulary words using a bank of letters
- identify structural and grammatical elements in a report.

Comprehension (meaning) Vocabulary (structure) Phonics (visual) Writing (structure)

