

1.6 Technological Advances and the Age of Exploration

Name: _____ Class: _____ Date: _____ **Total: 12 marks**

KEY WORDS technology 技术

Objective

Build the skills to explain how **technology** 技术 enabled exploration.

You must be able to:

- name the navigational and shipbuilding advances that mattered
- explain what each made possible
- distinguish a motive for exploration from an enabler
- state the role of state sponsorship

1 Worked examples

Study these first. Each one shows the method for a task used later.

■ The advances

Improved hull and rig designs allowing sailing against the wind; the compass and astrolabe for position; better charts; and shipboard artillery.

■ What each enabled

Rig design made ocean routes navigable in both directions. Instruments made position estimable out of sight of land. Artillery made a ship able to enforce a claim on arrival.

■ Motive against enabler

A desire for direct access to Asian goods is a **motive**; a ship able to reach Asia is an **enabler**. Confusing them is the commonest error in this subtopic.

■ State sponsorship

Voyages were expensive and risky. Crowns and chartered companies supplied capital and legal authority, which is why exploration followed political rivalry as much as commercial opportunity.

2 Practice

2.1 Name three technological advances relevant to exploration. [3]

2.2 State the difference between a motive and an enabler. [2]

2.3 A voyage is financed by a crown.

(a) State one reason state sponsorship was necessary. [1]

(b) State one consequence for what the voyage sought. [1]

3 Exam-style questions

3.1 The ability to sail against the wind mattered because it made [1]

- **A** ships faster in port
- **B** ocean routes navigable in both directions
- **C** artillery unnecessary
- **D** charts obsolete

3.2 “A demand for pepper and silk” is [1]

- **A** an enabler
- **B** a motive
- **C** a technology
- **D** a state policy

3.3 Shipboard artillery is listed among the technologies of exploration.

(a) State what it enabled. [1]

(b) Explain why it belongs with navigation rather than apart from it. [2]

Solutions

2.1 any three of: improved hull and rig design; the compass; the astrolabe; better charts; shipboard artillery.

2.2 a motive is why a voyage was wanted; an enabler is what made it possible.

2.3 (a) voyages were expensive and risky beyond private means, and needed legal authority. (b) the voyage served the sponsor's political as well as commercial aims.

3.1 B. return voyages become possible.

3.2 B. demand explains why, not how.

3.3 (a) enforcing a claim or a trading position on arrival. (b) reaching a place and holding a position there were parts of one venture, so the technology of arrival and the technology of enforcement served the same purpose.