

Vocabulary Workshop®

Tools for Excellence

Differentiated Passages

Grade 6

PASSAGE 1

UNIT 9

Read the following passage, taking note of the **boldface** words and their contexts. These words are among those you will be studying in Unit 9. As you complete the exercises in this unit, it may help to refer to the way the words are used below.

From Fire Arrows to Space Flight: A History of Rockets

< Informational Essay >

As early as 400 BCE, **logical** and observant inventors in Greece used steam to propel simple devices. A man named Archytas used steam to send a wooden pigeon gliding along high wires. These early steam-propelled devices were of little practical use. They were mainly used for entertainment. Over a thousand years later and thousands of miles away from Greece, Chinese alchemists learned to make gunpowder. By around 1100 CE, the Chinese were using gunpowder to make fireworks, which were used for celebrations. Simple grenade-like bombs were used in war. Before long, the Chinese learned to use gunpowder to

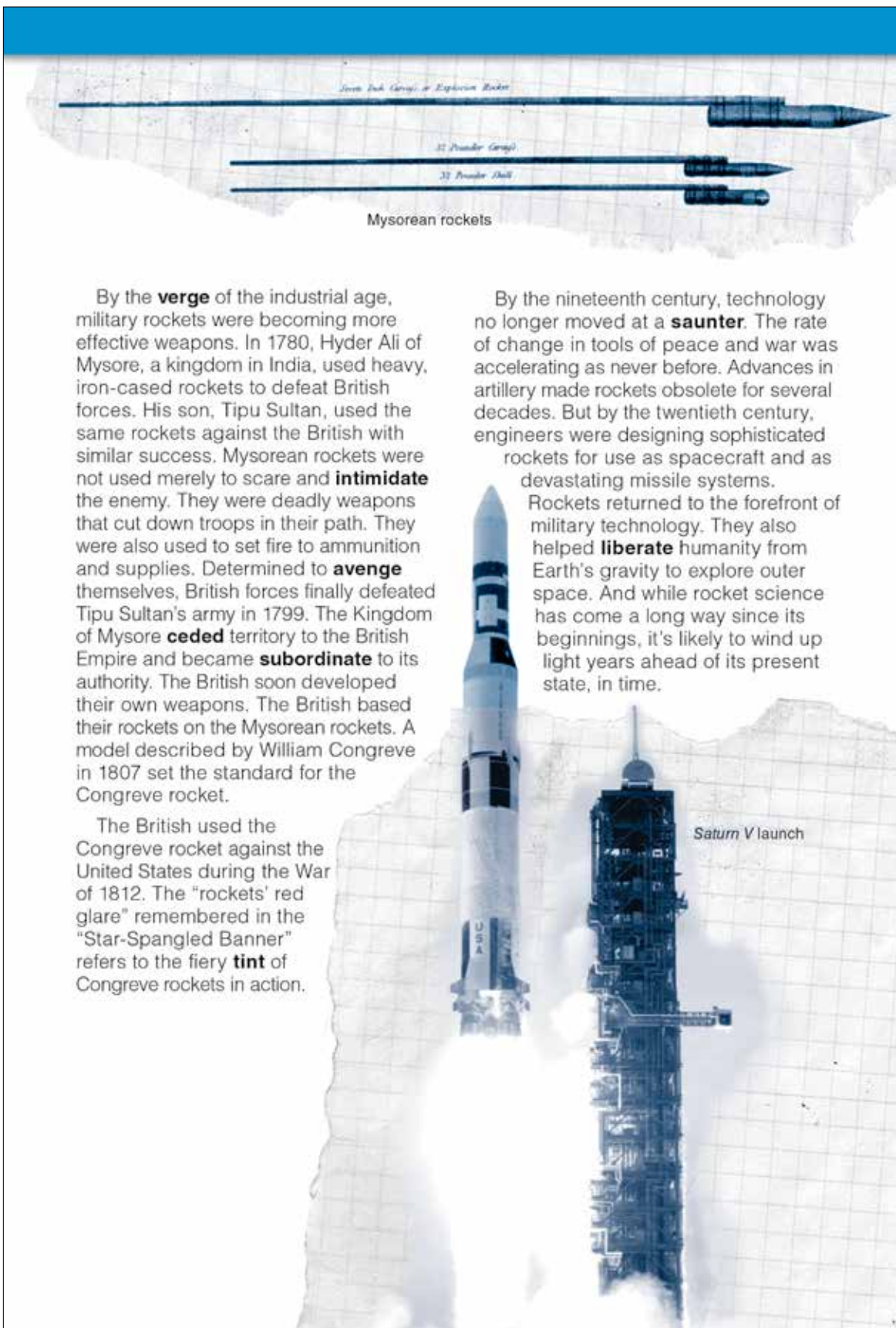
propel “fire arrows” through the air. The same basic principle of propulsion was at work in Archytas’s **giddy** pigeon and in Chinese fire arrows. But the special properties of gunpowder made the fire arrows useful tools of war.

In 1232, Chinese soldiers used fire arrows to defeat Mongol invaders at the Battle of Kai-Keng. This is the first known use of rockets in the history of warfare. To make these simple rockets, the Chinese filled a short bamboo tube with gunpowder. They capped one end of the tube. Then they attached it to an arrow. Then the gunpowder was ignited. It produced fire, smoke, and gas that escaped through the open end of the tube. This force propelled the rocket through the air. The arrow helped to keep the rocket steady during flight, though its course remained quite **variable**. These earliest rockets may not always have done much damage on **impact**. But a **deluge** of many fire arrows could cause **outright** fear in the enemy. Gaining something in defeat, the Mongols learned to make similar rockets. The new technology spread rapidly across Asia and Europe. But improvements in the basic design proceeded slowly at a **sluggish** pace until more modern days.



Early Chinese fire
arrow rockets, c. 1000

PASSAGE 1



By the **verge** of the industrial age, military rockets were becoming more effective weapons. In 1780, Hyder Ali of Mysore, a kingdom in India, used heavy, iron-cased rockets to defeat British forces. His son, Tipu Sultan, used the same rockets against the British with similar success. Mysorean rockets were not used merely to scare and **intimidate** the enemy. They were deadly weapons that cut down troops in their path. They were also used to set fire to ammunition and supplies. Determined to **avenge** themselves, British forces finally defeated Tipu Sultan's army in 1799. The Kingdom of Mysore **ceded** territory to the British Empire and became **subordinate** to its authority. The British soon developed their own weapons. The British based their rockets on the Mysorean rockets. A model described by William Congreve in 1807 set the standard for the Congreve rocket.

The British used the Congreve rocket against the United States during the War of 1812. The "rockets' red glare" remembered in the "Star-Spangled Banner" refers to the fiery **tint** of Congreve rockets in action.

By the nineteenth century, technology no longer moved at a **saunter**. The rate of change in tools of peace and war was accelerating as never before. Advances in artillery made rockets obsolete for several decades. But by the twentieth century, engineers were designing sophisticated rockets for use as spacecraft and as devastating missile systems. Rockets returned to the forefront of military technology. They also helped **liberate** humanity from Earth's gravity to explore outer space. And while rocket science has come a long way since its beginnings, it's likely to wind up light years ahead of its present state, in time.

PASSAGE 2

UNIT 9

Read the following passage, taking note of the **boldface** words and their contexts. These words are among those you will be studying in Unit 9. As you complete the exercises in this unit, it may help to refer to the way the words are used below.

From Fire Arrows to Space Flight: A History of Rockets

<Informational Essay>

As early as 400 BCE, **logical** and observant Greek inventors used steam to propel devices. A man named Archytas used steam to send a wooden pigeon gliding along high wires. These early devices were mainly used for entertainment.

Over a thousand years later, Chinese inventors learned to make gunpowder. By 1100 CE, the Chinese were using gunpowder to make fireworks. Before long, they were using gunpowder to propel "fire arrows" through the air. Archytas's **giddy** pigeon and Chinese fire arrows had the same basic principles. But

the special properties of gunpowder made the fire arrows useful tools of war.

In 1232, Chinese soldiers used fire arrows to defeat Mongol invaders. This is the first known use of rockets in warfare. To make these rockets, the Chinese filled a bamboo tube with gunpowder and attached it to an arrow. Then the gunpowder was ignited. The arrow helped to keep the flying rocket steady. However, its course remained quite **variable**. These early rockets did not always do much damage on **impact**. But a **deluge** of many fire arrows could cause **outright** fear in the enemy. Soon, the Mongols learned to make similar rockets.

The new technology spread rapidly across Asia and Europe. But improvements in the design proceeded at a **sluggish** pace for centuries.

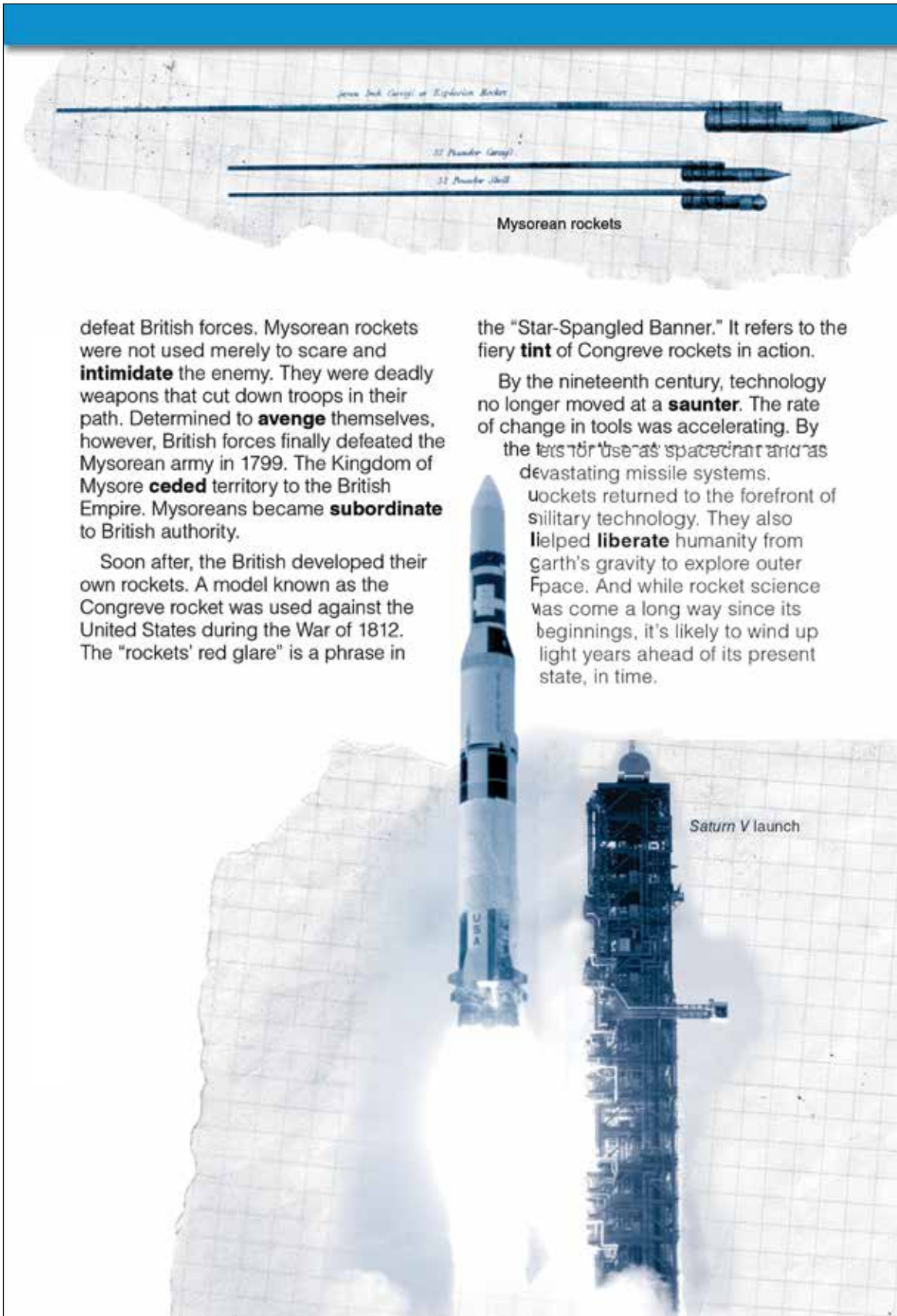
By the **verge** of the industrial age, military rockets were becoming more effective weapons. In the late 1700s, Mysore, a kingdom in India, used iron-cased rockets to



Early Chinese fire arrow rockets, c. 1000

Unit 9

PASSAGE 2



defeat British forces. Mysorean rockets were not used merely to scare and **intimidate** the enemy. They were deadly weapons that cut down troops in their path. Determined to **avenge** themselves, however, British forces finally defeated the Mysorean army in 1799. The Kingdom of Mysore **ceded** territory to the British Empire. Mysoreans became **subordinate** to British authority.

Soon after, the British developed their own rockets. A model known as the Congreve rocket was used against the United States during the War of 1812. The "rockets' red glare" is a phrase in the "Star-Spangled Banner." It refers to the fiery **tint** of Congreve rockets in action.

By the nineteenth century, technology no longer moved at a **saunter**. The rate of change in tools was accelerating. By the twentieth century, spacecraft and as devastating missile systems. Rockets returned to the forefront of military technology. They also helped **liberate** humanity from Earth's gravity to explore outer space. And while rocket science has come a long way since its beginnings, it's likely to wind up light years ahead of its present state, in time.