Name: ________________________________

Date: ________________________________

Engineering Sea Travel

Discovery TV created this video describing the video about the innovations that took place allowing for the world’s largest cruise liner.

https://www.youtube.com/watch?v=N3qh0SBH9EU

Clip 1: Answer these questions on another piece of paper as you watch the video. Stop and backup the video as you need to. These questions go through 7:40 in the video.

A) What does “five-star luxury” mean (0:08)?
B) What does “simulator” mean when the narrator says “surf simulator” (0:13)?
C) What does “eighteen stories high” mean at 0 minutes, 24 seconds (0:24)?
D) What does “pinnacle” mean in the quote “pinnacle of marine engineering” (0:40)?
E) What does the narrator mean by “engineering evolution” (0:49)?
F) What does “groundbreaking” mean when the narrator says “five groundbreaking leaps” (0:54)?
G) What does “key” in the phrase “five groundbreaking leaps by five key ships” (0:54)?
H) What does “unstoppable growth” mean at 1 minute, 4 seconds (1:04)?
I) What does the narrator mean by “traveling up the scale” (1:10)?
J) What does the narrator mean by “ingenious leaps forward” (1:28)?
K) What does “glamorous” mean when the narrator says a “glamorous destination” (3:00)?
L) What does the narrator mean by “a destination in itself” (3:15)?
M) What does “claim her place” mean at 3 minutes, 25 seconds?
N) What does “her” refer to in the quote “claim her place” (3:25)?
O) What does the narrator mean by the phrase “travel back in time” (3:30)?
P) Estimate what years you think are described by “Victorian” (3:30)?
Q) What does the narrator mean by “engineering genius” (3:35)?
R) What does “height” mean in “height of the Industrial Revolution” (3:55)?
S) What does the narrator mean by “blazes a trail of iron” (4:20)?
T) What does the narrator mean by “masterpiece” at 4 minutes (4:32)?
U) What is a “port” (4:40)?
V) What is a “board meeting” (4:55)?
W) What does “form” mean in “let’s form the Great Western Shipbuilding company” (5:10)?

Video at: https://www.youtube.com/watch?v=N3qh0SBH9EU.
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Modern-Day Sea Travel

Clip 2: Answer these questions on another piece of paper as you watch the video. Stop and backup the video as you need to. These questions go from 7:40 to 13:10 in the video.

Read these questions then watch the video from 7:40. Stop the video at 13:10 to answer any remaining questions.

https://youtu.be/N3qh0SBH9EU?t=7m41s

A) What is the narrator talking about when he says “this giant” (8:10)?
B) What does “doesn’t necessarily guarantee a strong structure” mean at 9 minutes, 7 seconds?
C) What does Ed McCann mean when he says “let’s see if it will take three” (10:10)?
D) What does Mr. McCann mean when he says “we can double the load-carrying capacity” (10:21)?
E) What does the analogy “like a giant three-d jigsaw puzzle” (11:13) tell you about ship building?
F) What does it mean to “align them precisely” (11:22)?
G) What is the narrator emphasizing when he says “withstand the pounding of the biggest waves and the heaviest seas” (11:21)?
H) Which term is defined as “continuous walls that run from the bottom of the ship to the top” (11:58)?

Clip 3: Answer these questions on another piece of paper as you watch the video. Stop and backup the video as you need to. These questions go from 13:10 to 23:40 in the video.

https://youtu.be/N3qh0SBH9EU?t=13m10s

Read these questions then watch the video from 13:10. Stop the video at 23:40 to answer any remaining questions.

A) What does “just” emphasize in the quote “Brunnell’s Great Western crossed the Atlantic in just 15 days” (13:12)?
B) What does the narrator mean by “Brunnell is already dreaming of a bigger trans-Atlantic steamer” (13:21)?
C) What does the image of “paddlewheels turning helplessly in its wake” (13:32) mean?
D) What does “preserved for posterity” (13:45) mean?
E) What is a “passing wave” (14:27)?
F) Sketch a paddlewheel that is “spinning uselessly” (14:31). Is it the same sketch that would describe a paddlewheel that is “lifted clear” (14:38)? Explain your thinking.
G) What does it mean that the “paddles are dipping in and out of the water”?
H) What does “one of the greatest minds of Ancient Greece” (14:58) describe about Archimedes?
I) What does it mean when Mr. Burton says propellers give “maximum power all the time” (16:01)?
J) What does the narrator mean by “to prove a theory, you can’t beat a demonstration” (16:21)?

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Date: ______________________________________

K) What did the “tug-of-war competition” (16:37) intend to prove?

L) What does “despite the paddle-boat’s head start, the propeller boat proves much more efficient” (17:14) mean?

M) What does it mean to “completely redesign the engine” (17:42)?

N) What does the narrator mean when he says the driveshaft “penetrates the hull through a watertight seal” (18:22)?

O) What does “a record-breaking time” (18:56) mean?

P) What are passengers doing when they “explore the local area” (19:26)?

Q) What does “there is no margin for error” (19:42) mean?

R) What is the meaning of a “narrow channel” at 19 minutes, 45 seconds?

S) What does it mean when something “can spin in 360 degrees” (20:41)?

T) What does “in unison” mean when the narrator says “the Azipods and bow propellers work in unison” (20:52)?

U) What does “unparalleled maneuverability” (20:56) mean?

V) What does the narrator mean by “innovative propulsion system” (21:15)?

W) What does “just 30 minutes” (21:23) imply about the time it takes to park the ship? * Extra: Have you ever seen someone try to park something for “just 30 minutes”? Did it feel quick?

X) Think about the narrator’s quote, “some of the biggest propellers in the business” (21:41). How many other propellers this size are there in the world? None? Some? Most? All of the other propellers?

Y) What does it mean that something is a “very precious metal” (21:52)?

Z) What does “top condition” (22:02) mean?

AA) The narrator talks about the “ship’s team of divers” (22:08). About how many divers do you think is in a “team of divers”? 0? 1? 2-10? 50-100? Over 1,000?

BB) What does “the clear waters of the Caribbean” (22:23) tell you about the water in the Caribbean Sea?

CC) What does it mean to “lose efficiency” (22:32)?

DD) What does the narrator mean by “a long way to go before they will need an overhaul” (23:09)?

Video at: https://www.youtube.com/watch?v=N3qh0SBH9EU. Questions have Creative Commons Copyright 2017 by American Society of Naval Engineers (CC BY-SA 4.0)
Clip 4: Answer these questions on another piece of paper as you watch the video. Stop and backup the video as you need to. These questions go from 23:40 to 30:10 in the video.

https://youtu.be/N3qh0SBH9EU?t=23m40s

Read these questions then watch the video from 23:40. Stop the video at 30:10 to answer any remaining questions.

A) What does “passengers find it hard to stomach the rough Atlantic seas” (23:42)?
B) What does the narrator mean by “the designers need to find a way to give her smooth passage” (23:58)?
C) What does the narrator mean by “the golden age of the ocean liner” (24:23)?
D) What does it mean when “competition for passengers was fierce” (24:26)?
E) What does “notoriously” mean when the narrator says “the notoriously tough Atlantic crossing”?
F) What does it mean when a ship is “naturally unstable” (25:12)
G) What does “a device with some very unusual properties” (25:45) mean?
H) What does the narrator mean when he says “the surfboard to rolls from side to side” (26:21)?
I) What does “counteracts the rolling motion of the waves” (27:27) mean?
J) Why is the Conte Di Savoia known as “the roll-less liner” (27:38)?
K) What does the narrator mean by “she’s a huge hit with passengers” (27:43)?
L) What does the narrator mean by “glides through the ocean as steady as a rock” (27:57)
M) What does the narrator imply by the word “cumbersome” when he says “she doesn’t need cumbersome gyroscopes to keep her stable” (28:09)?
N) What does it mean that “designers have fitted her with small fins” (28:17)?
O) What does “streamlined” mean in the quote “each one is streamlined so that it slices through the water without producing much drag” (28:32)? Extra: Is drag a problem or a solution for boats? Explain your thinking.
P) What made the waiters feel like “one minute you were walking up the hill, and the next minute you were running down the hill” (29:33)?
Q) What does the narrator mean by summarizing “a stable ride sold tickets” (30:08)?
Clip 5: Answer these questions on another piece of paper as you watch the video. Stop and backup the video as you need to. These questions go from 30:10 to 38:30 in the video.

https://youtu.be/N3qh0SBH9EU?t=30m9s

Read these questions then watch the video from 30:10. Stop the video at 38:30 to answer any remaining questions.

A) What does it mean “to break into the new luxury market” (30:13)?
B) What does the narrator mean by the phrase “make their new liner the last word in opulence” (30:23)?
C) What does it mean when a “market dries up overnight” (30:49)?
D) What does Albert Burton mean when he says that “a vessel that would be a showpiece for the talents of the whole French nation” (31:21)?
E) What does the narrator mean by “proves a real challenge” (31:52)?
F) What does it mean that the engines’ smoke “channel straight up through the decks” (32:10)?
G) Sketch what it looks like when the designers “split the boiler vents in two” (33:17) and “the two halves rejoin above and feed into the funnels” (33:34).
H) What does it mean when an engine is “churning” (33:41)?
I) What does the narrator mean by a “profitable new market” (34:20)?
J) What is the “Royal Promenade” (34:48)?
K) What does Ole Pedersen mean by “make sure this structure is safe and sound” (35:01)?
L) What does the narrator mean by “the ship is subjected to huge forces” (35:12)?
M) What does “a large empty space at her center would offer little resistance” (35:18)?
N) What does a “rigid backbone” (35:57) mean?
O) What does “open space” (36:12) mean?
P) What does it mean for something “to be open to the Caribbean sun” (36:52)?
Q) What does the narrator mean by “boasts” when he says “the Independence of the Seas boasts three of them” (36:57)?
R) What does “top heavy” (37:08) mean?
S) What is another way to say “thanks to her innovative layout” (37:41)?
T) What does the narrator mean when he says “passengers can enjoy the journey just as much as the destination” (37:58)?
U) What does “set a new benchmark for stylist travel” (38:21) mean?
V) What does the narrator mean by “soon a rival steams up alongside” (38:29)?
Clip 6: Answer these questions on another piece of paper as you watch the video. Stop and backup the video as you need to. These questions go from 38:29 to 44:35.

https://youtu.be/N3qh0SBH9EU?t=38m29s

Read these questions then watch the video from 38:29. Stop the video at 44:35 to answer any remaining questions.

A) What does the narrator mean by “the Queen Mary will attempt to beat the Normandie across the Atlantic” (38:37)?

B) What “title” will the Queen Mary attempt to claim according to the narrator at 38 minutes, 41 seconds?

C) What is a “permanent berth” (38:54)?

D) What does the narrator mean by “outwit the waves” (39:35)?

E) What does “waves form at the bow” (39:48) mean?

F) What are “scale models” (40:02)?

G) What does the narrator mean by “the waves cancel each other out” (40:25)?

H) What does “coincide” mean when the narrator says “its crest coincides with the trough of the stern wave and cancels it out” (40:48)?

I) What does it mean to “massively increase” (41:02) speed?

J) What does the narrator mean by “slicing through the rough Atlantic at speed” (41:11)?

K) What does it mean when “waves can surge over the ship’s bow” (41:18)?

L) Sketch what it looks like when naval engineers “shape her bow to flare outwards” (41:44).

M) What does the narrator mean by “shaving 3 hours off the Normandie’s record” (42:18)?

N) What does “blunt lump of metal” (43:14) mean?

O) What does the narrator imply by “plows” when he says that the Independence of the Seas “plows through the water” (43:27)?

P) What point does the narrator make when he states, “the Independence of the Seas powers through the seas at 22 knots, despite her huge bulk” (44:08)?

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Clip 7: Answer these questions on another piece of paper as you watch the video. Stop and backup the video as you need to. These questions go from 44:35 to the end.

https://youtu.be/N3qh0SBH9EU?t=38m29s

Read these questions then watch the video from 44:35. When the video ends, stop to answer any remaining questions.

A) What does the narrator mean by “disaster strikes” (44:49)?
B) What does the narrator mean by “approaches the last port of call on her cruise” (45:08)?
C) What does it mean for Captain Strazicic to “welcome his next set of passengers” (45:24)?
D) What does “safety is his number one priority” (45:45) mean?
E) Where do the crew gather during practice evacuation points before getting in rescue boats?
F) What does the narrator mean by “she is caught in a storm” (46:39)?
G) What does “ill equipped to cope” (47:01) mean?
H) What does the narrator show about the weather the day of this shipwreck by saying “the furious Pacific Ocean” (47:02)?
I) What does the narrator mean by “ensure big waves simply break over them” (47:34)?
J) What does the narrator mean by “a quick escape is vital” (48:08)?
K) What does “drill” mean when the narrator says “the drill is a success” (48:46)?
L) What does “embarks a fresh complement of passengers” (48:57) mean?
M) What does the narrator call the “ultimate floating pleasure palace” (49:12)?
N) What does “slice of Caribbean paradise” (49:17) mean?