How Animals Sleep

Teacher's Key | Level B2 | EnglishBridges.com

Sections follow the student handout. Delete a section here when you delete it from the handout. The handout uses the short (quick) version of the reading.

Vocabulary: Fill in the Blank

1. drift off
2. hemisphere
3. alert
4. predators
5. airborne
6. suspect
7. glide
8. bursts
9. add up
10. upright
11. stretches
12. trade-off / tradeoff / trade off
13. roost
14. sluggish

Word Partners

Part A. 1 h 2 f 3 e 4 c 5 g 6 b 7 a 8 d

Phrases: drift off to sleep; natural predators; a sudden burst of laughter; a long stretch of road; conserve your strength; make a difficult trade-off; sit upright; the left hemisphere of the brain.

Part B. 1 predatory 2 suspicion 3 alertness 4 conservation 5 glider 6 sluggishly

Comprehension Questions: Model Answers

1. *How long do most adults sleep at night, and what happens to the brain?*
Most adults sleep for seven or eight hours in one block at night, and the whole brain goes to sleep at once.

2. *Why can dolphins not sleep the way humans do, and how do they solve the problem?*
Dolphins breathe air, so they must keep coming up to the surface. They sleep with one hemisphere at a time while the other half stays alert.

3. *Why do ducks at the ends of a row keep one eye open?*
They are at the edge of the group, so they watch for predators. The open eye faces away from the group.

4. *How does frigatebird sleep in the air compare with their sleep on land?*
In the air they sleep only about 42 minutes a day, but on land they sleep more than 12 hours a day.

5. *What do researchers suspect about common swifts, and why is it not certain?*
Researchers suspect that swifts sleep while they glide, but nobody has recorded their brain activity in flight, so it is not proved.

6. *How do chinstrap penguins guarding a nest get enough sleep?*
They fall asleep more than 10,000 times a day in bursts of about four seconds, and these microsleeps add up to more than 11 hours.

7. *What trade-off might elephants and sperm whales face?*
Time spent asleep is time not spent finding food or watching for danger, so they may trade sleep for food or safety.

8. *Why might little brown bats sleep so much?*
Sleeping through most of the day may help them conserve energy when there is little food to find.

9. *Why is the jellyfish finding surprising, and what does it suggest about sleep?*
Upside-down jellyfish have no brain, yet they seem to sleep and are sluggish when kept from resting.

This suggests sleep may be very old and basic.

10. *True, False, or Not Given: "Common swifts sleep for about 42 minutes a day while flying." Explain your answer using the reading.*
    Not Given. The reading gives 42 minutes for great frigatebirds. For swifts, it says only that researchers suspect they sleep while gliding; nobody has measured it.
11. *Yes, No, or Not Given: "The writer believes that the human way of sleeping is the safest way for every animal." Explain your answer using the reading.*
    No. The writer says the human way is only one option and that for many species it would be risky or impossible.
12. *Author's purpose: Why does the writer describe the jellyfish at the end? Is it (a) to suggest that sleep may be very old and basic, (b) to show that jellyfish sleep more than bats, or (c) to explain how jellyfish find food at night?*
    (a) To suggest that sleep may be very old and basic. The writer says that if even an animal without a brain needs something like sleep, sleep may be older and more basic than expected.

True or False

1. **T.** One hemisphere sleeps while the other stays alert.
2. **F.** They sleep about 42 minutes a day in flight. The 12 hours are on land.
3. **F.** Researchers only suspect it. Nobody has proved it yet.
4. **T.** They sleep in bursts of about four seconds.
5. **F.** They add up to more than 11 hours a day.
6. **T.** They slept only about two hours a day on average.
7. **F.** They sleep upright near the surface.
8. **T.** The reading says they can sleep close to 20 hours a day.
9. **F.** They have no brain at all.
10. **T.** They were sluggish the next day, much as a tired person would be.

Language Focus: Result Clauses with So … That and Such … That

Model answers. Accept any answer that uses the form correctly and makes sense.

1. Last night I was so tired that I fell asleep before ten o'clock.
2. My phone is so important to me that I take it everywhere, even to the bathroom.
3. Once I was so nervous that I forgot my own phone number in an interview.
4. I once had such a busy day that I forgot to eat lunch.
5. I once read such an interesting book that I finished it in one night.
6. Yes, I was so tired that I fell asleep standing on the subway.
7. It was a statistics lecture. It was so boring that half the class fell asleep.
8. It was such a beautiful beach that I did not want to go home.
9. Yes. It was such a noisy night that I could not concentrate at work the next day.
10. A dolphin. Dolphins are such clever animals that I would love to watch them play.

Accept answers without that (I was so tired I fell asleep). Check so before adjectives and such before nouns.

Notes on the Evidence

Frigatebirds: Rattenborg et al., Nature Communications (2016), summarized by the Max Planck Society and ScienceDaily. Great frigatebirds nesting in the Galápagos; flights up to ten days; about 42 minutes of sleep per day in flight versus more than 12 hours on land; slow-wave sleep episodes up to several minutes, mostly after sunset and often while circling in rising air, with the eye facing the turn linked to the awake hemisphere. Swifts: Hedenström et al., Current Biology (2016), Lund University; some birds stayed airborne about ten months. Sleep in flight for swifts is a hypothesis, not measured, so the reading uses "suspect".

Unihemispheric sleep: dolphins, fur seals, and several birds (Scientific American). Ducks: Rattenborg, Lima, and Amlaner, Nature (1999); ducks at the ends of a row showed much more one-eyed sleep (about 150 percent more, per Scientific American) with the open eye facing away from the group. Human figure: adults are generally advised to get seven or more hours (CDC; seven to nine per the US National Sleep Foundation); "seven or eight hours" in the reading is a typical figure, not a recommendation.

Penguins: Libourel et al., Science (30 November 2023): more than 10,000 microsleeps a day, about four seconds each, totaling over 11 hours, in nesting chinstrap penguins in Antarctica (King George Island). Elephants: Gravett et al., PLoS ONE (2017): two free-roaming matriarchs in Chobe National Park, Botswana, about two hours of sleep a day, five occasions of up to 46 hours without sleep. Reasons (lions, poachers, a bull in musth) are from Paul Manger as quoted by Live Science. The reading avoids saying how often the elephants slept standing, since the summaries opened did not report it.

Sperm whales: Miller et al., Current Biology (2008): whales drifted vertically near the surface in bouts of roughly 10 to 15 minutes and spent about 7 percent of recorded time this way (ZME Science gives "about 10 minutes"; the reading uses a range). Bats: "up to nearly 20 hours a day when undisturbed" for the little brown myotis (Nature Conservancy of Canada); figures near 20 hours come largely from older lab studies. The energy explanation is a common hypothesis, so it is hedged with "may".

Jellyfish: Nath et al., Current Biology (2017), Cassiopea: reduced pulsing at night, slower response to stimuli, and about 17 percent less activity the day after night-time disruption (Smithsonian). Online Resources were opened with a fetch tool on 12 October 2026; the PMC copy of the frigatebird paper was blocked, so the Max Planck and ScienceDaily summaries were used.