

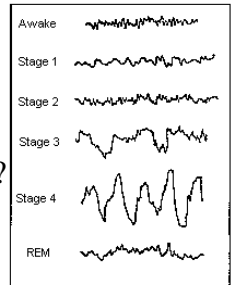
Sleep – A Dynamic Activity

Pre-reading

Questions: What do you know about sleep? What more would you like to know about it?

Definitions: Dynamic – lively or active

Dormant – not active for a period of time



Reading

Until the 1950s, most people thought of sleep as a **passive**, dormant part of our daily lives.

17 We now know that our brains are very active during sleep. We usually pass through five stages of
35 sleep: stages 1, 2, 3, 4, and REM (rapid eye movement) sleep. These stages progress in a **cycle**
53 from stage 1 to REM sleep. Then the cycle starts over again with stage 1.

68 Adults spend almost 50 percent of our total sleep time in stage 2 sleep, about 20 percent in
86 REM sleep, and the remaining 30 percent in the other stages. Infants, by contrast, spend about half
103 of their sleep time in REM sleep.

110 During stage 1, which is light sleep, we drift in and out of sleep and can be awakened
128 easily. Our eyes move very slowly, and a sensation of starting to fall followed by a sudden
145 contraction of muscles may be experienced. These sudden movements are similar to the “jump”
159 we make when startled.

163 When we enter stage 2 sleep, our eye movements stop and our brain waves become slower.
179 In stage 3, extremely slow brain waves called delta waves begin to appear, interspersed with
194 smaller, faster waves.

197 By stage 4, the brain produces delta waves almost exclusively. It is very difficult to wake
213 someone during stages 3 and 4, which together are called deep sleep. There is no eye movement or
231 muscle activity. People awakened during deep sleep do not adjust quickly and often feel groggy
246 for several minutes after they wake up. Some children experience bedwetting, night terrors, or
260 sleepwalking during deep sleep.

264 When we switch into REM sleep, our breathing becomes rapid, irregular, and shallow. Our
278 eyes jerk rapidly in various directions, and our limb muscles become temporarily paralyzed. Our
292 heart rate increases and our blood pressure rises. When people awaken during REM sleep, they
307 often describe bizarre and illogical tales – dreams.

314 The first REM sleep period usually occurs about 70 to 90 minutes after we fall asleep. A
331 complete sleep cycle takes, on average, 90 to 110 minutes. The first sleep cycles each night
347 contain short REM periods and long periods of deep sleep. As the night progresses, REM sleep
363 periods increase in length, while deep sleep decreases. By morning, people spend nearly all their
378 sleep time in stages 1, 2, and REM.

386 Source: National Institute of Neurological Disorders and Stroke, *Sleep – A Dynamic Activity*

Level 7.0

Understanding

1. What are delta waves? When are they present? _____

2. What is REM? What happens during this stage of sleep? _____

3. What does the word **passive** mean? _____

4. During what stage(s) do we dream? _____

5. What might happen to children in the stage of deep sleep? _____

6. Why is sleep referred to as a dynamic activity? _____

7. Do you think a person dreams more at the beginning, middle, or end of a night' sleep? Why? _____

Writing

Option A: Summarize the reading in your own words.

Option B: What new things did you learn about sleep? What surprised you?
