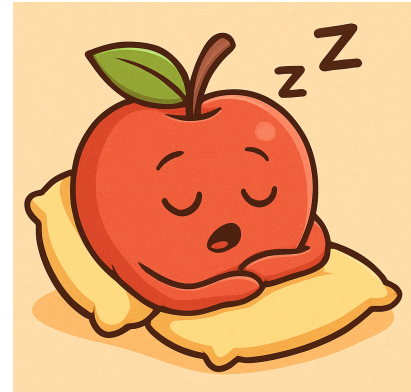


## Sleeping Apples: How We Keep Apples Fresh

Have you ever eaten an apple in the winter and wondered how it still tastes fresh and crunchy? Apples are typically harvested in the fall, yet we can enjoy them all year long. That's thanks to a clever method often called "**Sleeping Apples.**" Behind the nickname is a special storage technique known as **controlled-atmosphere** (CA) storage.



When apples are picked, they're still alive in a way — they breathe just like we do, taking in *oxygen* ( $O_2$ ) and releasing *carbon dioxide* ( $CO_2$ ). That process keeps them fresh for a while, but it also leads them to ripen, soften, and eventually over-ripen. To preserve that crisp firmness and juicy flavour, farmers help the apples essentially take a long nap.

Here's how it works: After harvesting, the apples go into large rooms that are sealed airtight so outside air can't sneak in. These rooms are chilled to near-freezing or a little above to slow down everything. Inside the rooms, the oxygen level is lowered dramatically (often to about 1–3% instead of the usual ~21%) and the carbon dioxide is allowed to rise to a few percent. Because of the low oxygen, the apples' breathing (respiration) is slowed way down. The result? The ripening process is slowed, the apples stay firm, the flavour holds, and they stay juicy. They're not frozen; they aren't going bad—they're just resting.

When the time comes to bring them out of storage, the apples look and taste nearly as if they were freshly picked—crispy, juicy and full of flavour. Because of this storage technique, we're able to enjoy high-quality apples not just in fall, but throughout all seasons. Thanks to "Sleeping Apples," winter apples can remain just as enjoyable as autumn ones.

## Sleeping Apples – Questions

### What We Can Learn

- Apples can be stored so they stay fresh for many months.
- Lowering oxygen slows the apples' breathing and ripening.
- Controlled storage helps apples stay crisp, juicy, and tasty.
- Science and smart technology help us enjoy apples all year round.

### Questions

1. Why can apples stay fresh in winter?
  - A. They regrow in winter
  - B. Special storage keeps them fresh
  - C. They are frozen
  - D. They are coated in sugar
2. What does "Sleeping Apples" mean?
  - A. Apples that sleep on trees
  - B. Apples stored to slow ripening
  - C. Apples only eaten at night
  - D. A new apple flavour
3. What happens when apples breathe?
  - A. They ripen
  - B. They turn red
  - C. They shrink
  - D. They freeze
4. What is changed in CA storage?
  - A. More oxygen is added
  - B. Oxygen is lowered
  - C. All air is removed
  - D. CO<sub>2</sub> is removed
5. Why do apples stay firm in storage?
  - A. They stop breathing completely
  - B. Their breathing slows down
  - C. They are dried out
  - D. They are underwater

1. B 2. B 3. A 4. B 5. B