Introduction and Chapter 1 — A Forest in Peril

1. *"Trees are hardy beings – tenacious, too. A Maple like this can live for some 400 years."*
    a. What is a word that could replace "tenacious" in this sentence?
        i. Weak
        ii. Resilient
        iii. Beautiful
        iv. Narrow

2. Name 3 threats facing Presqu'ile's forest ecosystem.

3. How do invasive species like the Emerald Ash Borer disrupt ecological balance?

4. Why is deer overpopulation considered a form of ecological pressure?

5. How does this chapter illustrate the concept of carrying capacity?

6. *"The problem is that there is no natural recruitment occurring in this forest."*
    a. What does the word "recruitment" mean in this sentence?
        i. death of old trees
        ii. deer eating trees
        iii. not enough animals being born
        iv. growth of new young trees

7. What might happen to the forest if natural recruitment continues to fail?

Chapter 2 — The Nursery & Seeds

1. Why is it important to collect seeds locally rather than from other regions?

2. How does climate influence the success of different tree species?

3. What does this chapter teach us about genetic adaptation?

4. How does the nursery help restore biodiversity in the park?

5. What might be the long-term ecological benefits of this nursery program?

Chapter 3 — The Humble Acorn

1. What factors determine whether an acorn is viable?

2. How does the float test help identify healthy seeds?

3. What does this chapter reveal about predator–prey or parasite–host relationships?

4. How might weevil infestation affect oak populations over time?

5. How does this relate to natural selection?

Chapter 4 — Sowing the Seeds

1. What challenges do young trees face in the nursery and in the wild?

2. Why do deer pose such a major threat to saplings?

3. How do different planting methods (buckets vs. in-ground beds) affect tree growth?

4. Why are oaks treated differently from other species?

5. How does this chapter illustrate the idea of limiting factors in an ecosystem?

Chapter 5 — The Planting Process

1. Why is it important to match tree species to the right habitat?

2. How does planting density influence tree survival and growth?

3. What role does root loss play in transplant shock?

4. How does this chapter connect to the idea of ecological niches?

5. What might happen if trees were planted in unsuitable environments?

Chapter 6 — Growing a Bright Future

1. Why do young trees need protection even after planting?

2. How does the "sleep, creep, leap" model help us understand plant development?

3. What does this chapter teach about long-term stewardship?

4. Why is it important to monitor planted trees over many years?

5. How does this chapter reinforce the idea that ecosystems are dynamic and constantly changing?

Answer Key

Introduction & Chapter 1 — A Forest in Peril

1. A word that could replace "tenacious":

Resilient

2. Name 3 threats facing Presqu'ile's forest ecosystem.

Any three of the following:

- Invasive species (e.g., Emerald Ash Borer, European Buckthorn)
- White-tailed Deer overpopulation
- Storm damage
- Climate change
- Disease
- Soil disturbance or erosion
- Loss of young tree recruitment

3. How do invasive species like the Emerald Ash Borer disrupt ecological balance?

They kill large numbers of ash trees, removing an important native species and creating gaps in the forest that allow other invasive plants to spread.

4. Why is deer overpopulation considered a form of ecological pressure?

Too many deer eat nearly all young saplings, preventing new trees from growing and altering the natural structure of the forest.

5. How does this chapter illustrate the concept of carrying capacity?

The forest can no longer support the current deer population; the deer exceed the ecosystem's ability to regenerate vegetation.

6. Meaning of "recruitment":

Growth of new young trees

7. What might happen to the forest if natural recruitment continues to fail?

The forest will age without replacement, leading to thinning tree cover, loss of species, and eventual ecosystem collapse.

Chapter 2 — The Nursery & Seeds

1. Why is it important to collect seeds locally rather than from other regions?

Local seeds are adapted to the specific climate, soil, and conditions of the park, increasing survival and maintaining genetic integrity.

2. How does climate influence the success of different tree species?

Species adapted to local temperature, rainfall, and seasonal patterns are more likely to survive and grow successfully.

3. What does this chapter teach us about genetic adaptation?

Trees from the same region share traits that help them thrive in that environment; using local genetics preserves these adaptations.

4. How does the nursery help restore biodiversity in the park?

It grows many native species that might not survive naturally, increasing the variety of plants and strengthening the ecosystem.

5. What might be the long-term ecological benefits of this nursery program?

- Healthier, more diverse forest
- Increased wildlife habitat
- Greater resilience to climate change
- Restoration of lost species
- Stabilized soil and improved water cycles

Chapter 3 — The Humble Acorn

1. What factors determine whether an acorn is viable?

- It must be fully developed
- Free of insect damage
- Heavy and nutrient-rich
- Intact seed coat

2. How does the float test help identify healthy seeds?

Healthy acorns sink because they are dense; damaged or hollow ones float.

3. What does this chapter reveal about predator–prey or parasite–host relationships?

Weevils lay eggs inside acorns, and the larvae eat the seed—showing how parasites can reduce seed survival.

4. How might weevil infestation affect oak populations over time?

Fewer viable acorns mean fewer new oak trees, potentially reducing oak numbers in the forest.

5. How does this relate to natural selection?

Only the strongest, healthiest acorns survive predation and germinate, passing on traits that improve survival.

Chapter 4 — Sowing the Seeds

1. What challenges do young trees face in the nursery and in the wild?

- Drought
- Competition from weeds
- Insect damage
- Disease
- Deer browsing
- Poor soil conditions

2. Why do deer pose such a major threat to saplings?

They eat tender young shoots, often killing the tree before it can grow tall enough to survive.

3. How do different planting methods (buckets vs. in-ground beds) affect tree growth?

Buckets protect roots and make transplanting easier; in-ground beds allow more natural root spread but expose seedlings to more risks.

4. Why are oaks treated differently from other species?

Oaks have deep taproots and large seeds, requiring special handling and more space to grow properly. They need to stay where they are planted.

5. How does this chapter illustrate the idea of limiting factors in an ecosystem?

Factors like deer browsing, soil quality, and competition limit how many young trees can survive.

Chapter 5 — The Planting Process

1. Why is it important to match tree species to the right habitat?

Different species need specific soil, moisture, and light conditions; planting them in the wrong place reduces survival.

2. How does planting density influence tree survival and growth?

Too many trees compete for resources; too few leave gaps that weeds or invasive species can fill.

3. What role does root loss play in transplant shock?

Losing roots during planting stresses the tree, making it harder to absorb water and nutrients.

4. How does this chapter connect to the idea of ecological niches?

Each tree species has a niche—its ideal conditions for survival—and planting must respect those needs.

5. What might happen if trees were planted in unsuitable environments?

They may die, grow poorly, or fail to establish, wasting restoration efforts.

Chapter 6 — Growing a Bright Future

1. Why do young trees need protection even after planting?

They are still vulnerable to deer, drought, storms, and competition from other plants.

2. How does the "sleep, creep, leap" model help us understand plant development?

It shows that trees grow slowly at first ("sleep"), then gradually ("creep"), and finally rapidly once established ("leap").

3. What does this chapter teach about long-term stewardship?

Restoration requires ongoing care, monitoring, and human involvement over many years.

4. Why is it important to monitor planted trees over many years?

To track survival, identify problems, and ensure the forest continues to recover.

5. How does this chapter reinforce the idea that ecosystems are dynamic and constantly changing?

It shows that forests evolve over time due to climate, species interactions, and human actions, requiring continuous adaptation and management.