

Park Explorer: Physics, Flora, and Fitness Fun!

Get ready to turn your local park into a living laboratory and gym! Today, we're combining the fun of being outdoors and active with the wonders of science.

Part 1: Warm-up & Nature Walk (15 minutes)

Focus: PE (Warm-up) & Science (Observation)

1. **Dynamic Warm-up:** Start with light cardio like marching in place or jogging slowly. Then, do dynamic stretches: arm circles (forward and backward), leg swings (forward/back and side-to-side), torso twists. (5 mins)
2. **Nature Observation Walk:** Begin walking briskly around a section of the park. As you walk, use your notebook to:
 - Identify and sketch or describe 3 different types of leaves or trees.
 - Note any insects or birds you see. Use a magnifying glass if you brought one for closer inspection!
 - Look for different textures (smooth bark, rough bark, fuzzy leaves).(10 mins)

Part 2: Playground Physics (20 minutes)

Focus: PE (Movement) & Science (Physics)

Head to the playground equipment! Remember to be safe.

1. **Slide Science:**
 - What force pulls you down the slide? (Gravity!)
 - Slide down. Does the material of your clothes affect your speed? (Friction!) Try to notice the difference if possible (e.g., jeans vs. smooth pants - *optional observation*).
 - Time how long it takes to get down the slide. Can you go faster by adjusting your position?
2. **Swing Science:**
 - What force keeps you coming back down when you swing? (Gravity!)
 - How do you get the swing higher? What are you doing with your body? (Shifting center of mass, applying force).
 - Count how many seconds it takes for 5 full swings (back and forth). Does it change much if you swing higher or lower? (Pendulum period is mostly dependent on length, not amplitude for small angles).
3. **Running & Jumping:**
 - Find an open grassy area. Mark a start and end point (about 20-30 steps apart).
 - Time how long it takes to jog between the points.
 - Time how long it takes to sprint between the points. Discuss the difference in effort and speed.
 - Practice vertical jumps. How high can you get your feet off the ground? What muscles are you using?

Part 3: Heart Rate Exploration (10 minutes)

Focus: PE (Physiology) & Science (Biology)

1. **Resting Heart Rate:** Sit quietly on a bench for 2 minutes. Find your pulse (wrist or neck). Count the beats for 15 seconds and multiply by 4. Record this as your resting heart rate.

2. **Active Heart Rate:** Jog in place or do jumping jacks for 1 minute. Immediately find your pulse again, count for 15 seconds, and multiply by 4. Record this.
3. **Recovery:** Walk slowly for 2 minutes. Measure your heart rate again (15 seconds x 4). Notice how it's coming back down.
4. **Discussion:** Why does your heart beat faster when you exercise? (Your muscles need more oxygen, so the heart pumps blood faster to deliver it).

Part 4: Cool-down & Reflection (10 minutes)

Focus: PE (Cool-down) & Science (Review)

1. **Static Cool-down:** Perform static stretches, holding each for 20-30 seconds. Examples: quadriceps stretch, hamstring stretch, calf stretch, shoulder stretch, triceps stretch. (5 mins)
2. **Reflection:** Sit and review your notebook.
 - What was the most interesting plant or insect you saw?
 - Where did you feel the effects of gravity most strongly on the playground?
 - How much did your heart rate increase from resting to active?
 - What was your favorite physical activity today?(5 mins)

Extension Ideas: Draw a map of the park areas you visited. Research one of the plants or insects you identified. Calculate your speed during the jogging/sprinting activity ($\text{Speed} = \text{Distance} / \text{Time}$).