Optional Windmill hub
Tinkertoy® parts can be used for a reusable hub. The central “spool” and rods replace the Styrofoam balls, with craft sticks taped to the rods. Blade materials are taped to the craft stick, as in the original lesson.

Advantages: reusable, cuts down on waste since Styrofoam is not recyclable, hub is sturdy and not brittle

Disadvantages: Spools have designated holes, and limit the number and placement of the blades.

• Take a few example sails from Lesson 3 and put them onto a windmill hub one at a time. Students could discuss advantages/disadvantages of designs when adapted for this use.

• Facilitation prompts that use the words “catch the wind” are effective. (e.g. how can you change your windmill blade to catch the wind?)