

CHAPTER 9

Physical Simulations

With Expressions, you can easily animate bounces, jiggles, and bumps. In this chapter, that's just what we'll be doing. Most of the Expressions here build on concepts I've already explained, such as sine and cosine. I won't repeat those explanations here. Rather, I'll show you how to set up the Expressions, note key details, and suggest a few variations you can try.

In the following Expressions, I'll list variables at the top, followed by a double space, followed by code that uses the variables. The top variables are for you to play with. Please have fun changing their values, previewing, and watching how your new values alter the way the Expressions work.

383

Note: In some cases, I've converted the Expressions to keyframes. I've done this just to make the illustrations in this book clearer. With keyframes, you can see motion paths in the Comp window.

ORBITS

- Example Comp: Chapter09.aep, Comp1.
- Setup: Add two layers, Sun and Earth.
- Expression on Earth's Position:

```
var center = thisComp.layer("sun").transform.position;
var distanceX = 100;
var distanceY = 150;
var orbitSpeed = 2;
center + [Math.sin(orbitSpeed * time)*distanceX, -Math.
cos(orbitSpeed * time)*distanceY];
```