THE TRAJECTORIES OF
THE MARTIAN

by LAURA BURKE | graphic by MICHAEL GRESHKO

1 JULY 7, 2035

The Ares 3 mission to Mars leaves low Earth orbit aboard the Hermes.

NOVEMBER 7, 2035* (SOL 0)

After nearly 124 days and over 150 million miles, the Hermes arrives at Mars.

2 NOVEMBER 13, 2035 (SOL 6)

A freakishly strong dust storm forces the Ares 3 crew to abort, inadvertently leaving behind Mark Watney. The Hermes begins its return to Earth.

*** MAY 23, 2036 (SOL 192)**

The Hermes begins the Rich Purnell maneuver, which adds over 600 million miles to the mission—but gives the crew a chance to rescue Watney.

3 JULY 6, 2036 (SOL 229.7)

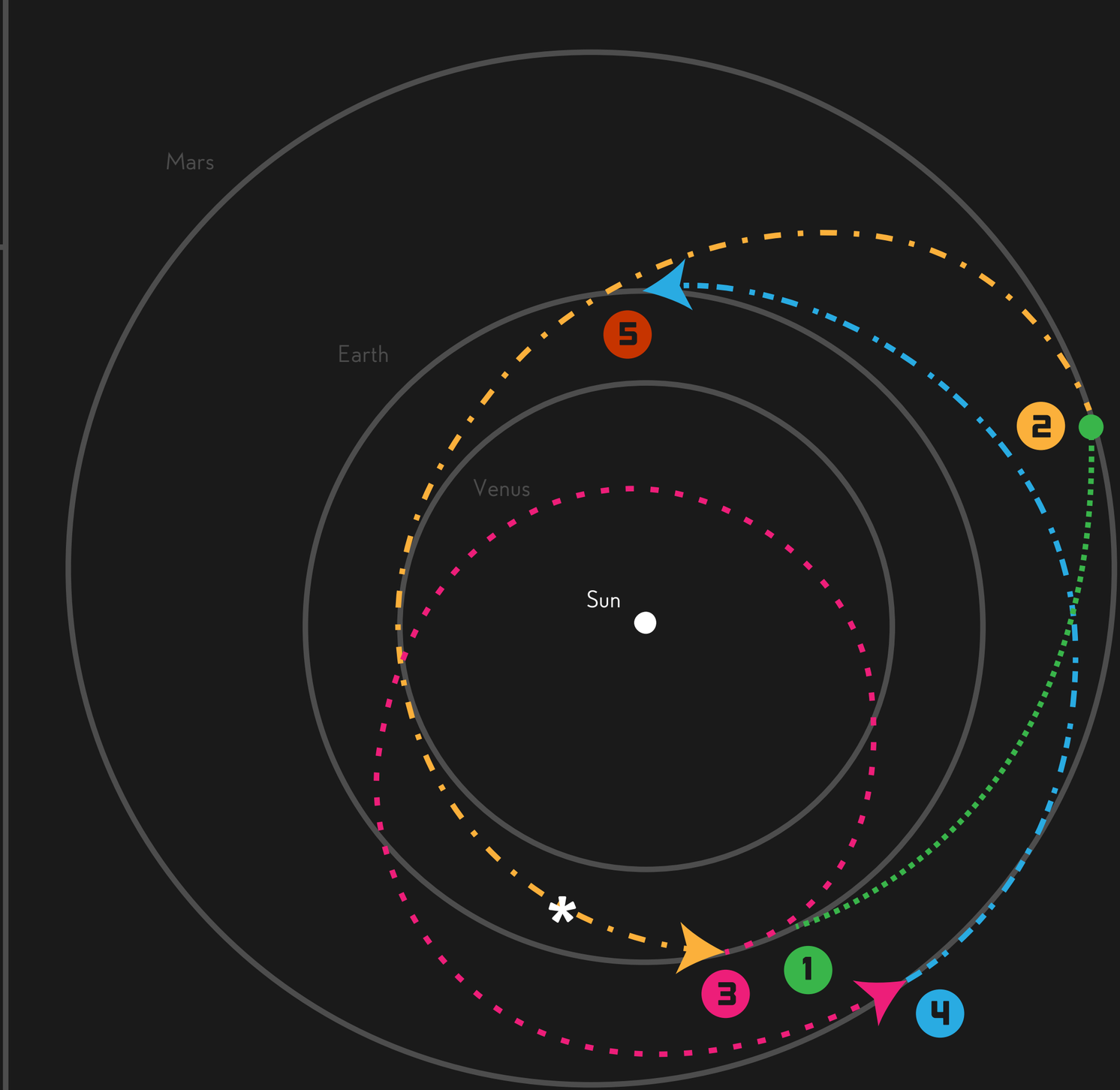
The Hermes flies by Earth, using our planet's gravitational field to adjust its trajectory.

4 MAY 24, 2037 (SOL 549)

The Hermes flies by Mars at 12,000 mph (5.36 km/s), successfully and harrowingly rescuing Watney.

5 DECEMBER 21, 2037

The Hermes returns to orbit around Earth.



Burke, Laura. "An Examination of 'The Martian' Trajectory." NASA Glenn Research Center. 29 September 2015.

Flight paths reflect the optimized trajectory of the Hermes using the dates and spacecraft performance in "The Martian." The spacecraft has an inert mass of 110 metric tons and is capable of constant acceleration at 2 mm/s^2.

To see Andy Weir's original trajectories, visit galactanet.com/martian/hermes.mp4.

*The optimized initial leg takes 123.8 days. Date listings assume that the Hermes leaves Earth at 12:00 AM on July 7, 2035.