FREE PRINTABLE · 7 PAGES · AGES 5 AND UP

Planet Birthday Walk

How old would you be on Mercury? Walk around a paper Sun, then work out your own birthdays on other planets from their real years.

1. The birthday walk

10 minutes · any age

Put the Sun (page 2) in the middle of the floor. Lay the month cards (page 3) in a circle around it, about 4 big steps out, January to December, counterclockwise: the way all the planets go round, seen from above the North Pole. The birthday child holds the Earth card (page 4), starts at their birthday month and walks once around the Sun for each year of their age while everyone counts. One lap is one Earth year, 365¼ days. A grown-up can tell a story from each year on the way.

2. The planet race

10 minutes · 4 walkers

Mercury, Venus, Earth and Mars stand 1½, 3, 4 and 6 big steps from the Sun: the planets' real spacing, scaled down (halve it in a small room). While Earth walks one lap, Mercury goes round about 4 times, Venus 1½ times and Mars only halfway. So Mercury has to hurry, like the real one, which travels 29 miles a second to Earth's 18.5. Ask: when Earth turns 1, how old is Mercury? Jupiter would stand 21 big steps away and take almost 12 years to walk one lap.

3. Planet-birthday math

30 minutes · grades 4–6

On the worksheet (page 5), children count the days they've lived, then divide by each planet's year: 88 days for Mercury, 687 for Mars. Dividing by 88 is Common Core 5.NBT.B.6 (four-digit dividends, two-digit divisors); by 225 or 687, 6.NS.B.2. The birthday ladder (page 6) turns each next birthday into an exact day, and the month cards turn days into dates. The answer key below shows every step.

4. The certificate

parties, classes, troops

Page 7: fill in a child's ages and next birthdays from the worksheet or the free calculator. A type-in version is at manyhappyorbits.com/birthday-walk.

What's inside

1 This guide and answer key
2 The Sun
3 Month cards
4 Planet cards
5 Worksheet
6 The birthday ladder
7 Certificate

You'll need

Scissors, crayons and a pencil. Optional: yarn to wear the planet cards, and a calculator for older children.

Girl Scout Juniors

Fits Step 2 of the Space Science Investigator badge, “Circle the Sun,” as several councils run it: a birthday walk, then your age on other planets. Not an official Girl Scouts resource.

Check answers free at manyhappyorbits.com: everyone's age and next birthday on every planet. Nothing typed leaves your device.

Answer key: Sam, born May 10, 2017, on November 4, 2026

Days lived: 365 × 9 = 3,285, plus 2 Feb 29s (2020, 2024), plus 178 days since May 10 (day 308 − day 130) = **3,465**.

Planet	One year	Age there	Next birthday	On day	Days to go	Date
Earth	365¼	9.5	10th	3,652	187	May 10, 2027
Mercury	88	39.4	40th	3,518	53	Dec 27, 2026
Venus	225	15.4	16th	3,595	130	Mar 14, 2027
Mars	687	5.0	6th	4,121	656	Aug 21, 2028
Jupiter	4,333	0.8	1st	4,332	867	Mar 20, 2029

Planet years and distances: NASA Planetary Fact Sheet. The ladder uses its exact years: Mercury 87.97 days, Venus 224.70, Earth 365.26, Mars 686.98, Jupiter 4,332.59. Not affiliated with NASA or Girl Scouts of the USA. Made by Many Happy Orbits, a small business in Washington State that makes personalized calendars of a family's planet birthdays. Free to print and share at home, school, troop and library; please don't sell it.

BIRTHDAY WALK

The Sun

Color it in and put it in the middle of the floor. Every lap you walk around it is one year of your life.



The Sun holds 99.8% of all the mass in the solar system. Earth circles it about 93 million miles away, once every 365¼ days.

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BIRTHDAY WALK

Month cards

Cut them apart and lay them in a circle around the Sun, January to December, counterclockwise. The day numbers help with dates on the worksheet.

January

31 days

Day 1 to day 31
of the year

Next: February →

February

28 days (29 in 2028)

Day 32 to day 59
of the year

Next: March →

March

31 days

Day 60 to day 90
of the year

Next: April →

April

30 days

Day 91 to day 120
of the year

Next: May →

May

31 days

Day 121 to day 151
of the year

Next: June →

June

30 days

Day 152 to day 181
of the year

Next: July →

July

31 days

Day 182 to day 212
of the year

Next: August →

August

31 days

Day 213 to day 243
of the year

Next: September →

September

30 days

Day 244 to day 273
of the year

Next: October →

October

31 days

Day 274 to day 304
of the year

Next: November →

November

30 days

Day 305 to day 334
of the year

Next: December →

December

31 days

Day 335 to day 365
of the year

Next: January →

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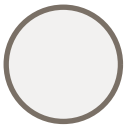
PLANET RACE

Planet cards

Cut them out. Punch the hole and add yarn to wear one. The planets are drawn to scale with each other.

Mercury



One year: 88 Earth days

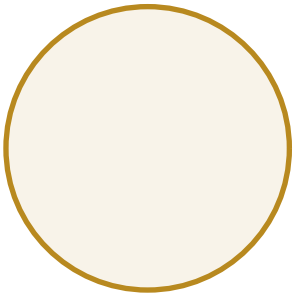
Stand 1½ big steps from the Sun

While Earth goes round once, I go round about 4 times.

Speed: 29 miles a second

The smallest planet, and the fastest.

Venus



One year: 225 Earth days

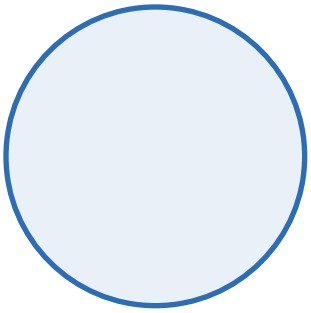
Stand 3 big steps from the Sun

While Earth goes round once, I go round about 1½ times.

Speed: 22 miles a second

It spins backward, so its Sun rises in the west.

Earth



One year: 365¼ days

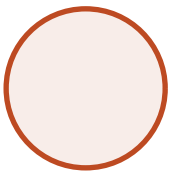
Stand 4 big steps from the Sun

I go round once a year: that's what a year is!

Speed: 18.5 miles a second

The only world known to have life.

Mars



One year: 687 Earth days

Stand 6 big steps from the Sun

While Earth goes round once, I get only about halfway.

Speed: 15 miles a second

Rusty dust makes it red.

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PLANET-BIRTHDAY MATH

My planet birthdays

Name _____ My birthday _____ Today's date _____

Step 1. How many days have I lived?

365 × my age in years (_____) = _____

Add 1 for each Feb 29 since I was born (2008, 2012, 2016, 2020, 2024, 2028) + _____

Add the days since my last birthday: today's day number _____ minus my birthday's day number _____. (Day numbers are on the month cards. Below zero? Add 365.) + _____

Days I've lived = _____

Step 2. Fill in the table

Divide to find my age on each planet (one decimal place is plenty). My next birthday there is the next whole number. The birthday ladder on page 6 says which day of my life it falls on.

Planet	One year (Earth days)	My age there days lived ÷ one year	My next birthday there	It falls on day (the ladder, p. 6)	Days to go day − days lived	The date (Step 3)
Earth	**365¼**	*(it should match my age)*	*My next Earth birthday is my real one!*			
Mercury	**88**					
Venus	**225**					
Mars	**687**					
Jupiter	**4,333**		*(1st, for most kids)*			

Step 3 (challenge). Find the dates

Today's day number + days to go = the birthday's day number. More than 365? Take away 365 and move to the next year (again if you need to). Then find the month card that holds the number: day 75 is March 16, because March starts at day 60, and 75 − 60 + 1 = 16. If you passed a Feb 29 on the way, the birthday is one day earlier.

Check your answers with the free calculator at manyhappyorbits.com. The dates should match exactly. An age might be off in the last digit, because this sheet rounds each planet's year to whole days.

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PLANET-BIRTHDAY MATH

The birthday ladder

You were born on day 0 of your life. Each box is a birthday on that planet, with the day of your life it falls on. Your next birthday there is the first box whose day is bigger than the days you've lived.

Mercury one year = 87.97 Earth days

1st day 87	2nd day 175	3rd day 263	4th day 351	5th day 439	6th day 527	7th day 615	8th day 703
9th day 791	10th day 879	11th day 967	12th day 1,055	13th day 1,143	14th day 1,231	15th day 1,319	16th day 1,407
17th day 1,495	18th day 1,583	19th day 1,671	20th day 1,759	21st day 1,847	22nd day 1,935	23rd day 2,023	24th day 2,111
25th day 2,199	26th day 2,287	27th day 2,375	28th day 2,463	29th day 2,551	30th day 2,639	31st day 2,727	32nd day 2,815
33rd day 2,902	34th day 2,990	35th day 3,078	36th day 3,166	37th day 3,254	38th day 3,342	39th day 3,430	40th day 3,518
41st day 3,606	42nd day 3,694	43rd day 3,782	44th day 3,870	45th day 3,958	46th day 4,046	47th day 4,134	48th day 4,222
49th day 4,310	50th day 4,398	51st day 4,486	52nd day 4,574	53rd day 4,662	54th day 4,750	55th day 4,838	56th day 4,926
57th day 5,014	58th day 5,102	59th day 5,190	60th day 5,278	61st day 5,366	62nd day 5,454	63rd day 5,542	64th day 5,630
65th day 5,717	66th day 5,805	67th day 5,893	68th day 5,981	69th day 6,069	70th day 6,157	71st day 6,245	72nd day 6,333
73rd day 6,421	74th day 6,509	75th day 6,597	76th day 6,685	77th day 6,773	78th day 6,861	79th day 6,949	80th day 7,037

Venus one year = 224.70 Earth days

1st day 224	2nd day 449	3rd day 674	4th day 898	5th day 1,123	6th day 1,348	7th day 1,572	8th day 1,797
9th day 2,022	10th day 2,247	11th day 2,471	12th day 2,696	13th day 2,921	14th day 3,145	15th day 3,370	16th day 3,595
17th day 3,819	18th day 4,044	19th day 4,269	20th day 4,494	21st day 4,718	22nd day 4,943	23rd day 5,168	24th day 5,392
25th day 5,617	26th day 5,842	27th day 6,066	28th day 6,291	29th day 6,516	30th day 6,741	31st day 6,965	32nd day 7,190

Mars one year = 686.98 Earth days

1st day 686	2nd day 1,373	3rd day 2,060	4th day 2,747	5th day 3,434	6th day 4,121	7th day 4,808	8th day 5,495
9th day 6,182	10th day 6,869						

Jupiter one year = 4,332.59 Earth days

1st day 4,332	2nd day 8,665

Past the end of the ladder? Multiply the birthday by the planet's year above and drop the decimals. Mercury's 81st: 81 × 87.9691 = 7,125.5, so day 7,125. Or let the free calculator at manyhappyorbits.com do it.

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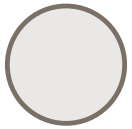
Happy Planet Birthday!

This certifies that

_____

has traveled around the Sun _____ times aboard planet Earth.
On other planets, that makes them:



Mercury

_____ years old

Next birthday there:

_____

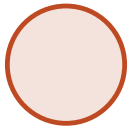


Venus

_____ years old

Next birthday there:

_____

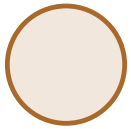


Mars

_____ years old

Next birthday there:

_____



Jupiter

_____ years old

Next birthday there:

_____

Presented by _____ **on** _____

Every planet birthday, free:
manyhappyorbits.com