

# ברכת החמה

י'ד' ניסן, תשס"ט ~ Wednesday, April 8, 2009

Brooklyn Sunrise: 6:27:45

ירושלים הנץ החמה: 6:14:31

One who sees the sun in its time (season), which is from 28 years to 28 years, when the time (season) begins on the beginning of Wednesday night. When he sees it Wednesday morning, he recites the blessing of "Who makes the work of creation".

הרואה חמה בתקופתה והוא מכ"ח שנה לכ"ח שנה והתקופה נתחלת ליל ד' כשרואה אותה ביום ד' בבוקר אומר ברוך עושה [מעשה] בראשית (משנה ברורה, סימן רכט, סעיף קטן ב).

Compiled by Moishe Miller

## What Occurs Every 28 Years?

What is so special about 28 years? What actually happens every 28 years?

Every 28 years, the sun returns to the same position it was in the sky when the world was created (see chart to the right). This happens on תקופת ניסן.



To understand more detail about exactly how this cycle works, you must first know five things:

1. When was the sun created?
2. What does it mean the sun is in the "same position"? Isn't the sun always in the same location?
3. What is an English (solar) year, and how long does it last?
4. If the Earth goes around the sun every year, why don't we make the ברכה every year?
5. Why don't we make the ברכה הראש השנה on?

1. **Q.** When was the sun created?

**A.** The פסוק says:

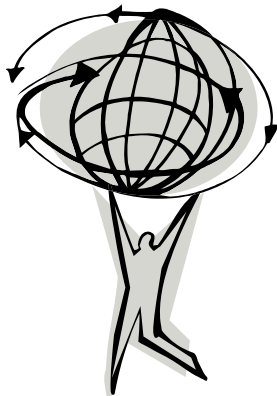
... יהי מארות ברקיע השמים ...  
ויהי ערב ויהי בקר יום רביעי  
(בראשית א:יד-יט)

so we see that the sun was created on Wednesday.

2. **Q.** What does it mean "same position"? Isn't the sun always in the same location?

**A.** Actually, no, it isn't in the same place every day. Even though it rises in the east every day and sets in the west, it rises and sets in different parts of the sky every day. If you could see the stars during the day, you would actually see that the star background is different.

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**The sun seems to move through the sky in relation to the stars behind it, and is seen in a different location every day.**

## The Short Answer—תקופת ניסן

1	5769	Tue, Apr 7, 2009	6:00 PM
2	5770	Thu, Apr 8, 2010	12:00 AM
3	5771	Fri, Apr 8, 2011	6:00 AM
4	5772	Sat, Apr 7, 2012	12:00 PM
5	5773	Sun, Apr 7, 2013	6:00 PM
6	5774	Tue, Apr 8, 2014	12:00 AM
7	5775	Wed, Apr 8, 2015	6:00 AM
8	5776	Thu, Apr 7, 2016	12:00 PM
9	5777	Fri, Apr 7, 2017	6:00 PM
10	5778	Sun, Apr 8, 2018	12:00 AM
11	5779	Mon, Apr 8, 2019	6:00 AM
12	5780	Tue, Apr 7, 2020	12:00 PM
13	5781	Wed, Apr 7, 2021	6:00 PM
14	5782	Fri, Apr 8, 2022	12:00 AM
15	5783	Sat, Apr 8, 2023	6:00 AM
16	5784	Sun, Apr 7, 2024	12:00 PM
17	5785	Mon, Apr 7, 2025	6:00 PM
18	5786	Wed, Apr 8, 2026	12:00 AM
19	5787	Thu, Apr 8, 2027	6:00 AM
20	5788	Fri, Apr 7, 2028	12:00 PM
21	5789	Sat, Apr 7, 2029	6:00 PM
22	5790	Mon, Apr 8, 2030	12:00 AM
23	5791	Tue, Apr 8, 2031	6:00 AM
24	5792	Wed, Apr 7, 2032	12:00 PM
25	5793	Thu, Apr 7, 2033	6:00 PM
26	5794	Sat, Apr 8, 2034	12:00 AM
27	5795	Sun, Apr 8, 2035	6:00 AM
28	5796	Mon, Apr 7, 2036	12:00 PM
1	5797	Tue, Apr 7, 2037	6:00 PM

### The Basics:

What Occurs Every 28 Years? 1

The Short Answer 1

The Sun's Position 2



## The Sun's Position is Not Constant

During the year, the sun's midday position seems to change. You may notice that the sun at noon is not always in the same place in the sky. It varies in its height above the horizon.

At noon on the first day of summer the sun appears very high in the south, and on the first day of winter at noon, it appears very low. This occurs because the Earth is tilted on its axis by about 23½ degrees, in its orbit around the sun. In the summertime, the Northern Hemisphere (where we live) faces more directly towards the sun; in the wintertime, just the opposite. This is why it is hotter in the summer (even though the Earth is further away from the sun in the summer).

If you measured the angle between the highest summer position of the sun and its lowest winter position, you would find that the difference is 47 degrees – exactly twice the tilt of the Earth's axis.

However, if you were to chart the exact position of the sun in the sky at the same time every day you would find something interesting. Over the year, you would discover that the position of the sun doesn't just move up and down, but also from side to side, tracing out a figure eight in the sky. This shape is called an analemma.



The position of the sun at noon varies throughout the year.

## What Occurs Every 28 Years? Continued from p. 1

3. **Q.** What is an English (solar) year, and how long does it last?

**A.** A solar year is the time it takes for the Earth to go once around (orbit) the sun and return to the same spot. This takes 365 ¼ days. Also, it might be helpful to understand, "what is a day?" As the Earth goes around the sun, it is also spinning in its place, like a top, so that at times part of the Earth faces the sun and at times, that part faces away. This takes 24 hours (known as a solar day) to complete.

4. **Q.** If the Earth goes around the sun every year, why don't we make the ברכה every year?

**A.** The truth is, it takes 365 days and almost 6 hours for the Earth to orbit the sun (52 weeks & 1¼ days). The sun was created Wednesday eve (Tuesday at 6pm). That means that the next year, the sun would be at the same location relative to the Earth on a Thursday, 365 days later, at midnight. The following year it would be Friday at

6am, then Saturday at noon, then Monday at 6pm, then Tuesday midnight, then Wednesday 6am, and so on. See the chart on the prior page for the full cycle. It takes 28 years for the sun to again start the year on Tuesday at 6pm (the eve of Wednesday).

5. **Q.** Why don't we make the ראש ברכה on ראש השנה?

**A.** There is a מחלוקת when the world was created. We hold as far as ברכת החמה is concerned that בניסן נברא העולם – the world was created in ניסן. We do not make the ראש ברכה on ראש חודש ניסן either, because ראש חודש is determined by the moon's cycle, while ברכת החמה is determined by the sun's position.

**Summary:** 52 weeks equals 364 days. However, the "English" year is 365 ¼ days long. That difference means that every year the sun starts 1 ¼ days later in the week. It takes 28 years for the English year to again begin on the same day of the week, at the same hour.



Why don't we make the ברכה every year?