

BIBLE STUDY—CALCULATED HEBREW CALENDAR FUNDAMENTALS

1) BASICS

- a) The Calculated Hebrew Calendar (CHC) is a lunisolar calendar meaning it accounts for both the orbit of the moon around the earth (as well as the phases) and the orbit of the earth around the sun.
- b) The names of the months are Babylonian, the result of the time Judah was held captive in Babylon. Not all names are recorded in the Bible:

NAME	SCRIPTURE REFERENCE
Nisan	Esth. 3:7; Lev. 23:5; Exod. 13:4; 23:15; 34:18; Deut. 16:1.
Iyar	1 Kings 6:1
Sivan	Esth 8:9
Tammuz	<i>Not mentioned.</i>
Av	<i>Not mentioned.</i>
Elul	Neh. 6:15
Tishri	1 Kings 8:2
Cheshvan	1 Kings 6:38
Kislev	Neh. 1:1
Tevet	Esth. 2:16
Shevat	Zech. 1:7
Adar	Zech. 1:7
Adar II	<i>Not mentioned.</i>

- c) There are 12 months in a **common** year and 13 months in a **leap** (intercalary) year:

MONTH	NAME	COMMON			LEAP		
		353	354	355	383	384	385
1	Nisan	30	30	30	30	30	30
2	Iyar	29	29	29	29	29	29
3	Sivan	30	30	30	30	30	30
4	Tammuz	29	29	29	29	29	29
5	Av	30	30	30	30	30	30
6	Elul	29	29	29	29	29	29
7	Tishri	30	30	30	30	30	30
8	Cheshvan	29	29	30	29	29	30
9	Kislev	29	30	30	29	30	30
10	Tevet	29	29	29	29	29	29
11	Shevat	30	30	30	30	30	30
12	Adar	29	29	29	30	30	30
13	Adar II				29	29	29

- d) The length of a **common** year is 353, 354, or 355 days.
 - i) A year with 353 days is called a deficient common year.

- ii) A year with 355 days is called an abundant common year.
- e) The length of a **leap** year is 383, 384, or 385 days.
 - i) A year with 383 days is called a deficient leap year.
 - ii) A year with 385 days is called an abundant leap year.
- f) The calendar is organized into 19-year cycles called a Metonic cycle.
- g) Each 19-year Metonic cycle has the same **pattern** even though the length of each year can vary (common = 353, 354, 355 and leap = 383, 384, 385):

YEAR	TYPE
1	Common
2	Common
3	Leap
4	Common
5	Common
6	Leap
7	Common
8	Leap
9	Common
10	Common
11	Leap
12	Common
13	Common
14	Leap
15	Common
16	Common
17	Leap
18	Common
19	Leap

- h) Adjustments to the 8th, 9th, and 12th months:
 - i) The 8th month Cheshvan is **increased** 1 day for abundant years (common and leap).
 - ii) The 9th month Kislev is **reduced** 1 day for deficient years (common and leap).
 - iii) The 12th month Adar is **increased** 1 day for leap years.
- i) Each 19-year Metonic cycle can have a total of 6939, 6940, 6941, or 6942 days.
 - i) **NOTE:** There have only been two Metonic cycles with 6942 days: -854 to -836 and -607 to -589 (negative years are B.C.).
- j) There are 14 unique patterns of Metonic cycles due to the variations in the number of days per year (deficient, normal, abundant).

2) HOLYDAYS

a) TRUMPETS DECLARATION:

- i) The primary purpose of the CHC is to determine when the new moon (called a molad) of the seventh month occurs. This is called the Molad of Tishri and it determines Tishri 1. It is the only molad of concern because the only holyday that is established on a new moon is Trumpets and the holyday established on the subsequent full moon is first day of the Feast of Tabernacles. No other holydays are specified by a new moon so the Molad of Tishri determines all the holydays because they are a fixed number of days before or after this date.
- ii) Calculating the Molad of Tishri sometimes requires postponements or adjustments for practical reasons:
 - 1) If the Molad of Tishri or a postponement would result in Trumpets occurring on a Sunday, Wednesday, or Friday, the Tishri 1 declaration is advanced one day to Monday, Thursday, or Saturday respectively. This prevents Atonement from falling on a Friday or Sunday so that there are not two consecutive days when all work is prohibited.
 - a) NOTE: The weekly Sabbath and Atonement forbid all work (Heb. *mla'kah*) whereas all other holydays forbid servile work (Heb. *`abodah mla'kah*).
 - 2) When the Molad of Tishri occurs at noon or later, the Tishri 1 (Trumpets) declaration is advanced to the next day; otherwise, the day would be too far gone.
 - 3) When the Molad of Tishri of a common year falls on Tuesday at or after 9 hours, 204 parts (there are 1080 parts/hour) the Tishri 1 (Trumpets) declaration is advanced to Wednesday. This also triggers the application of postponement Rule #1 to advance the declaration one more day to Thursday. This prevents a common year from having 356 days (making the year one day too long) by ensuring the year is 354 days.
 - 4) When the Molad of Tishri of a common year immediately following a leap year occurs on a Monday at or after 15 hours, 589 parts the Tishri 1 (Trumpets) declaration advanced to Tuesday. This prevents the previous leap year from having 382 days (making the year one day too short) by ensuring the year is 383 days.

b) DAYS OF THE WEEK:

- i) The following chart shows what days of the week are allowable for the holydays:

HOLYDAY	SUN	MON	TUE	WED	THU	FRI	SAT
Passover	Never		Never		Never		
DUB Day #1		Never		Never		Never	
Wavesheaf Offering	Always						
DUB Day #7	Never		Never		Never		
Pentecost	Always						
Trumpets	Never			Never		Never	
Atonement	Never		Never			Never	
FOT Day #1	Never			Never		Never	
FOT Day #8	Never			Never		Never	

- ii) The limitations of the days of the week means the holydays can only have one of four patterns in a particular year:

HOLYDAY	#1	#2	#3	#4
Passover	Wed	Fri	Sat	Mon
DUB Day #1	Thu	Sat	Sun	Tue
Wavesheaf Offering	Sun	Sun	Sun	Sun
DUB Day #7	Wed	Fri	Sat	Mon
Pentecost	Sun	Sun	Sun	Sun
Trumpets	Sat	Mon	Tue	Thu
Atonement	Mon	Wed	Thu	Sat
FOT Day #1	Sat	Mon	Tue	Thu
FOT Day #8	Sat	Mon	Tue	Thu

c) HOLYDAY DATES:

- i) The first seven months **always** have a fixed number of days regardless of the number of days in the year. Starting with the first month and continuing through the seventh month, the months alternate 30 → 29 → 30 → 29 → 30 → 29 → 30 days; whereas the 8th, 9th, and 12th months can vary. This is vitally important because all of the holydays occur during the first seven months so that they always occur on the same day of the CHC month every year. The only exception is Pentecost, which is determined by the Wavesheaf Offering.

HOLYDAY	HEBREW CALENDAR DATE	SCRIPTURE
Passover	Nisan 14	Lev. 23:5
DUB Day #1	Nisan 15	Lev. 23:6
Wavesheaf Offering	Nisan 15, 16, 18, or 20.	Lev. 23:11
DUB Day #7	Nisan 21	Lev. 23:8
Pentecost	Sivan 5, 6, 8, or 10.	Lev. 23:15-16
Trumpets	Tishri 1	Lev. 23:24
Atonement	Tishri 10	Lev. 23:27
FOT Day #1	Tishri 15	Lev. 23:34
FOT Day #8	Tishri 22	Lev. 23:36

- 1) **NOTE:** The 50-day count to Pentecost begins with the day of the Wavesheaf Offering, which always falls on the first day of the week

(Sunday) during the Days of Unleavened Bread. Because the Wavesheaf Offering can only occur on the 15th, 16th, 18th, or 20th day of the first month, Pentecost can occur on the 5th, 6th, 8th, or 10th day of the third month (Sivan).

- ii) Once Tishri 1 (Trumpets) is determined, the other holydays can be determined by subtracting or adding the appropriate number of days:

HOLIDAY	NUMBER OF DAYS RELATIVE TO DATE OF TRUMPETS
Passover	Subtract 164 days. 17 (Nisan) + 29 (Iyar) + 30 (Sivan) + 29 (Tammuz) + 30 (Av) + 29 (Elul)
DUB Day #1	Subtract 163 days. 16 (Nisan) + 29 (Iyar) + 30 (Sivan) + 29 (Tammuz) + 30 (Av) + 29 (Elul)
DUB Day #7	Subtract 157 days. 10 (Nisan) + 29 (Iyar) + 30 (Sivan) + 29 (Tammuz) + 30 (Av) + 29 (Elul)
<i>Pentecost</i>	49 days after the Wavesheaf Offering. See note above.
Trumpets	Tishri 1.
Atonement	Add 9 days.
FOT Day #1	Add 14 days.
FOT Day #8	Add 21 days.

- iii) This means that only the future dates of Tishri 1 (Trumpets) need to be known in order to calculate all the other holydays for other years:

YEAR	TISHRI 1 DATE
2023	Sat Sep 16
2024	Thu Oct 3
2025	Tue Sep 23
2026	Sat Sep 12
2027	Sat Oct 2
2028	Thu Sep 21
2029	Mon Sep 10
2030	Sat Sep 28
2031	Thu Sep 18
2032	Mon Sep 6
2033	Sat Sep 24
2034	Thu Sep 14
2035	Thu Oct 4

3) YEAR OF NOAH'S FLOOD

- a) Of all the calendars, the only known one with a year that is 385 days long is the CHC. This is quite unique because the Bible documents that the year of Noah's flood was exactly 385 days long. This means that the CHC is the only calendar that is recognized in the Bible. To prove this requires only a few scriptures:
- i) GENESIS 7:11-12 **In the six hundredth year of Noah's life, in the second month, on the seventeenth day of the month,** on this day all the fountains of the great deep were broken up, and the windows of the heavens were opened. 12 And the **rain fell upon the earth forty days and forty nights.**
 - 1) Noah was 600 years old when the rains began falling on Iyar 17.
 - 2) It rained 40 DAYS.
 - ii) GENESIS 7:24 And the waters prevailed upon the earth a hundred and fifty days.
 - 1) The water prevailed upon the earth 150 DAYS after the rain.
 - iii) GENESIS 8:3 And the **waters receded** from off the earth continually, and at the end of the **hundred and fifty days** the waters had gone down.
 - 1) The waters receded over the next 150 DAYS.
 - iv) GENESIS 8:10-13 And he **waited yet another seven days**; and again he sent forth the dove out of the ark. 11 And the dove came to him in the evening, and, lo, in her mouth was an olive leaf plucked off. So Noah knew that the waters had gone down from off the face of the earth. 12 And he **waited yet another seven days**, and sent forth the dove; and she did not return again to him any more. 13 And it came to pass **in Noah's six hundred and first year, in the first month, the first day of the month,** that the waters were drying up from off the face of the earth. And Noah removed the covering of the ark and looked, and, behold, the face of the earth was drying!
 - 1) These 14 days were included in the 150 days that the waters receded (read Gen. 8:2-12 carefully).
 - 2) Noah was in his 601st year when the waters were dried from the earth on Nisan 1.
- b) Duration:
- i) The flood began on Iyar 17, which was 46 days after Nisan 1. (30 days in Nisan + 16 days to Iyar 17 when the flood began.)
 - ii) The flood was declared officially over on Nisan 1 of Noah's 601th year.
 - iii) Adding up all the days from Nisan 1 of Noah's 600th year through and including Nisan 1 of Noah's 601st year:

- 1) Nisan 1 to Iyar 17 = 46
- 2) Rain = 40
- 3) Water prevailed = 150
- 4) Waters receded = 150
- 5) _____
- 6) **TOTAL DAYS = 386**
- 7) THEREFORE, NOAH'S 600TH YEAR WAS **385 DAYS** LONG.

c) FLOOD TIMELINE:

MONTH	DAYS PER MONTH	NOTES
Nisan	30	Gen. 7:11-12: 600th year of Noah.
Iyar	29	Gen. 7:11-12: Rain fell 40 days beginning Iyar 17 (Day #46).
Sivan	30	Gen. 7:11-12: The 40 days ended on Sivan 27 (Day #86). Gen. 7:24: Waters prevailed 150 days starting Sivan 28 (Day #87).
Tammuz	29	
Av	30	
Elul	29	
Tishri	30	Gen 8:4: Ark came to rest on Ararat mountains on Tishri 17.
Cheshvan	30	Gen. 7:24: The 150 days ended on Cheshvan 29 (Day #236). Gen 8:3: Waters abate 150 days starting Cheshvan 30 (Day #237).
Kislev	30	
Tevet	29	Gen. 8:5: Tops of mountains visible on Tevet 1.
Shevat	30	
Adar	30	
Adar II	29	Adar II 29 is Day #385.
Nisan		Gen 8:3: The 150 days ended Nisan 1 (Day #386). Gen. 8:10-13: 601st year of Noah. Earth is dry.
TOTAL DAYS =	385	

- i) The number of days from Nisan 1 of Noah's 600th year through and including Nisan 1 of Noah's 601st year is 386 days. Subtract one day for Nisan 1 of Noah's 601st year makes Noah's 600th year 385 days long; therefore, it must be an abundant leap year of 385 days. Based upon other information, the flood occurred in 2369 B.C. (year 6 of the Metonic cycle) in the CHC, which is 385 days long!