# Making 1 (1.00), 10, 100, <br> 1,000 and 10,000 Resource Packet 

## Resource Prepared for use with Video On

## "Counting UP $\uparrow$ to 'Make 10’"

by
Blaine Helwig

| WHEN to teach the "Making" |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Grade | Making 1 <br> (Level A \& B) | Making 10 (Mod. for $1^{\text {st }}$ \& $2^{\text {nd }}$ grades) | Making 100 <br> (Level A) <br> (Mod. for $\mathbf{2 d}^{\text {nd }}$ grade) | Making 100 <br> (Level B \& C) | Making 1,000 <br> (Level A \& B) | Making 10,000 (Level A \& B) |
| Grade 1 |  | $\checkmark$ (Mod) |  |  |  |  |
| Grade 2 |  | $\checkmark$ (Mod) | $\checkmark$ (Mod) |  |  |  |
| Grade 3 |  | $\checkmark$ | $\checkmark$ |  | $\checkmark$ (A only) | $\checkmark$ (A only) |
| Grade 4 | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |
| Grade 5 | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |
| Grade 6 | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |

## Table of Contents of "Making" Numeracy Skills' Practice

- Resource Recommendations for Effective Use (i-v)


## $1^{\text {st }}$ Grade:

- Making 10 w Dots (P1 \& P2) - Pgs. 1 - 4 (Not timed)
- Making 10 w Equations (P1 - P3) - Pgs. 5-10 (Not timed)
- Making 10 w/o Equations (P1 \& P2) - Pgs. 11 - 14 (3 min.)

2nd Grade: ( 5 minutes on all assessments.)

- Making 10 w/o Equations (P1 \& P2) - Pgs. 15-18
- Making 100 w/o Equations (P1 \& P2) - Pgs. 19-22
$3^{\text {rd }}$ Grade thru $6^{\text {th }}$ Grade: ( 5 minutes on all assessments.)
- Making 10 w/o Equations (P1 \& P2) - Pgs. 23-26
- Making 100 (Levels A, B \& C) - Pgs. 27-32
- Making 1,000 (Levels A \& B) - Pgs. 33-36
- Making 10,000 (Levels A \& B) - Pgs. 37-40
- Making 1 (1.00) (Levels A \& B) - Pgs. 41-44

NOTE 1 - P1, P2 or P3 indicates multiple versions of same practice (P) sheet. NOTE 2 - Black star on answer key denotes student MASTERY level in time limit. NOTE 3 - Use IEP for appropriate resource sheet for students in special education

## Resource Recommendations for Effective Use

My video series will clarify the pedagogical process so that many common missteps are avoided, and teachers of all experience levels are successful and effective with the implementation of curricular resources. In my 30 years of public education experience, I have seen many efficiently and effectively designed Tier 1, Tier 2 and Tier 3 curricular resources and pedagogy not work due to user-error and inefficient classroom routines and student management - either in an individual classroom or school-wide programming. If there is one curricular criticism comment that I have heard repeatedly, it is the following: "That program or curricular resource does not work with my students." Then, in response to that negative critique, I followed-up and observed both the curricular resource's implementation as well as the classroom quality controls. Invariably, I arrive at the conclusion, "Of course, the curricular resource or program was not effective - the cause - poorly designed implementation, lack of required consistency and insufficient student accountability." Again, this video series provides the needed steps to rectify or greatly lessen many of these issues.
In general, the video series in math, science and literacy will focus on the four (4) primary phases of 'student learning' and 'pedagogy' that must be addressed to produce consistent and sustained student outcomes.

First, skill or process lesson design must be sequenced from tactile lessons as new concepts are introduced and transition to pictorial representation lessons. After the tactile and pictorial stages are student mastered, the lesson design transitions to a paper-pencil formatted structure. In short, daily core lessons begin with a concrete stage and/or pictorial stage and end in a paper-pencil structure depending on the concept and the grade level.

Second, there must be a threshold number of repetitions to master a skill or process. There are varying means of spiraling instruction to accomplish the threshold repetition limits, but if the objective is to ingrain the skill into long-term memory, repeated exposure is a necessity. For students classified as 'general education' scholars, the range is between 8 to 16 iterations to master a skill or process. However, if the student is receiving special education services, then the minimum required repetitions may vary widely. In those situations, a student's defined disability must be taken into account as well as the student's Individual Education Plan (IEP).

Third, there is always a sequencing hierarchy in skill development since skills must be learned in a specific order, or the majority of students will be cognitively overwhelmed. For example, a student should possess whole number line mastery prior to learning to 'round' whole numbers to the nearest 10, 100 or thousand. These prerequisite skills should be taken into consideration so the student is not trying to learn both the prerequisite skills and the dependent skills simultaneously.

Fourth, the pedagogical spiraling mechanism to achieve the threshold number of repetitions is difficult for teachers of any experience level. There is a teaching method entitled 'spaced repetition' that efficiently and effectively addresses this situation. That technique will be the subject of a future video. However, this resource packet is intended to provide a classroom teacher with most of the prerequisite skills, processing skills and their sequencing referenced in the video; consequently, only the repetition pedagogy remains an open question.
Each of the prerequisite or core skills referenced in the video are detailed below from either the pictorial or paper-pencil stage of lesson design and student learning. Finally, teachers MUST practice the skills sufficiently to aptly prepare students for the student assessment. All too often the lack of student learning and subsequent content mastery in many teachers' classrooms are a result of insufficient practice opportunities.

## Curricular Resources Included for this Video

## FIRST GRADE

1.) Making 10 with Dots (P1 \& P2) - This pictorial exercise has two Practice versions ( P 1 and P 2 ) to provide students with sufficient practice. Each of the two versions is divided in half so the teacher can employ the resource for 4 days instead of 2 . However, before using this pictorial exercise with students, it is highly recommended that teachers design core lessons with tactile manipulatives to 'Make 10' for at least 4 to 5 days. Some common objects are small plastic disks, blocks or pennies (since a penny is equal to 1 cent). A pictorial exercise like this resource should always follow tactile lessons when new concepts are introduced.

When using this resource, students should equate an associated addition math fact (e.g., $3+$ $\qquad$ $=10$ ) with each dot diagram picture. On both P1 and P2, the addition equation associated with a missing addend is located under each dot diagram. After students master this resource, the teacher can employ a quick rapid mini-review prior to the core lesson using hands as the visual manipulative to further reinforce the Making 10 concept - each day until the students master the skill. For instance, the teacher can show students 9 digits on his or her two hands, and the students respond by showing 1 finger - to make a sum of 10 (i.e., $9+1=10$ ).

## Example:




Teacher


Students



Teacher


Students

It is important that teachers begin this daily activity by choosing numbers close to 10 ; consequently, at the beginning, he or she would visually display only three numbers (i.e., 8, 9, and 10 digits) - or the students view too many number pairings, and will not be exposed to a sufficient number of repetitions to memorize the pairings to automaticity ( 10,0 and 9,1 and 8,2 ). Additionally, the students are only adding a small number (fingers) to 'Make 10.' Then, after 3 days, the teacher can add two more numbers (i.e., 6 and 7) and continue to practice Making 10 with the numbers 8,9 and 10. Continue the process until all the number combinations have been covered from 0 through 10. It is one of the teacher's objectives that students begin to recognize number pairings to sum or make $10-(0,10) ;(1,9) ;(2,8) ;(3,7) ;(4,6)$ and $(5,5)$. In doing so, students mentally pair a combination of 1 -digit numbers that sum to 10 with automaticity. Emphasize these number patterns. Note: The teacher should be observing students that struggle during these mini-lessons, so that they know which children may require more assistance to master this important Base 10 numeracy content. Again, automaticity with physical understanding is the overriding goal!
2.) Making 10 with Equations ( $\mathbf{P 1}$ - P3) - This Practice exercise is the next sequential learning step in the Making 10 series for $1^{\text {st }}$ graders. Students begin 'Making 10' using addition equations completing the addend in the equation. The teacher is encouraged to press students on the pragmatic meaning of commutative property of addition during this activity - so students realize the following commutative mathematic property: $4+6=10$ as does, $6+4=10$ (i.e., addends can be exchanged and the sum does NOT change. Finally, the six (6) individual math facts learned in 'Making 10' aid students in learning their addition math facts from 0 through 12 to automaticity.
3.) Making 10 without Equations (P1 - P3) - The final learning stage in 'Making 10' (for first graders) is mental math. Students are given a digit from zero (0) through ten (10), and they write its
compatible pair. Again, it is recommended that the teacher sufficiently practice each morning for short and rapid practice sessions, so that students master this important numeracy skill.

A methodology that is highly effective in aiding and preparing students in this activity is the following example: A teacher holds up her hand(s) displaying 8 fingers and students WRITE 2 on their paper or on their desk with dry erase markers. With first graders, it may take up to two (2) weeks to sufficiently prepare them for this last Practice resource. Again, start the process by ONLY using larger numbers equal or close to the number 10 (i.e., 10,9 and 8 ). Then, systematically add a number or two (e.g., 6 and/or 7 ) every 3 days - while continuing to practice the previously learned numbers as well. When ALL students are ready, assess their 'Making 10' numeracy ability with P1, P2, and P3. Additionally, one of the three (3) Practice exercises can be used as homework to provide extra opportunities for repetition to ensure student success. The recommended time limit to finish this exercise is $\mathbf{3}$ minutes. Note: If teachers adequately prepare their students for an assessment of any type, time limits on activities are rarely a stressor for students.

## Example:

Teacher:


Students WRITE: 1

## SECOND GRADE

1.) Making 10 without Equations (P1 \& P2) - If students are computationally prepared for this activity, then assess them using Practice exercises P1 or P2 for 5 minutes. If not, teachers can use the same pedagogical process that was used for first graders in 3.) Making 10 without Equations (P1-P3) outlined above. When students are sufficiently prepared for success, then and only then, assess the students.

Note: In my nearly 30 years of public education experience, as either a classroom teacher or a campus administrator, I never witnessed a student that experienced an 'anxiety issue' with a timed test. I believe the reason for this success is that children were properly prepared for the assessment. They were not nervous or under pressure to perform. They were comfortable with the expectation, and again, they were sufficiently prepared and practiced for success. Consequently, it is imperative that a teacher NOT assess students with (P1 or P2) until they have sufficiently practiced the skill with them. Then, it is easy to motivate and praise them on their efforts and accomplishments until they are all successful.
2.) Making 100 without Equations (P1 \& P2) - This exercise (P1 and P2) is usually the first-time students begin to understand the numeracy power of Base 10. After students have mastered summing two single digit numbers to 10, they soon realize that it is the SAME mathematical process for summing two numbers to Make 1.00, 100 or 1,000 except we add zeros behind the two numbers (e.g., $3+7=10 ; 30+70=100 ; 300+700=1,000$ or $0.3+0.7=1.0$ ). Prepare students in the same manner as described in Making 10 above; however, it is highly effective for students to count by multiples of tens both by chorally SPEAKING and WRITING the multiple string. For example, the teacher can say let's count by multiples of tens - and students respond chorally by counting by tens: $\{0,10,20,30,40,50,60,70,80,90,100\}$. Repeat exercise, but students WRITE the multiples of ten on a piece of paper or on their desks using dry erase markers. When students are prepared for success, assess them on this exercise with a 5 -minute time limit.

Note: Again, teachers should stress to students that $4+6=10$ and $40+60=100$ and $400+$ $600=1,000$. The important point is that students realize that the number pairs (4 and 6) to Make

10 are the same number pairs to Make 100 (40 and 60), etc. Finally, addition possesses a commutative property that allow addends to be interchanged and not alter the sum (e.g., $30+70$ $=100$ and $70+30=100$ ).

Note: The first digit in all multiple patterns is always zero (0). Thus, when students count by tens or any other number, the first digit is always zero (0), and then the number (e.g., multiples of 10: $\mathbf{0}, \underline{10}, 20,30, \ldots$ or multiples of 2 : $\mathbf{0}, \underline{2}, 4,6, \ldots$ )

## THIRD THROUGH SIX GRADE

1.) Making 10 without Equations (P1 \& P2) - This exercise begins with mental math. If students have not been prepared in the primary grades, then the teacher may have to revisit those activities listed above prior to assessing students. The recommended time for completion is 5 minutes. Again, it is important to note that if students are amply prepared for an assessment, a time limit is rare as a stressor. If students are not doing well on any assessment or exercise, the only question that remains is the level of their preparation. (Third grade and up)
Note: It is imperative that students master this skill prior to moving on to Making 100.
2.) Making 100 (Levels A, B and C) - These three Levels (A, B, and C) with multiple Practice versions for each level are critical for students' general numeracy ability and an understanding of Base 10 mechanics. Each Level builds the foundation for the next stage and ensures student success. Recommended time limit: 5 minutes.

Level A presses students to Make 100 using only multiples of 10. Again, recognize that this exercise is also 'Making 10' - but adding a zero. $(2+8=10$; therefore, $20+80=100)$. (Third grade and up)

Level B presses students to Make 100 using only multiples of 10 and a midpoint, so they are only counting up by a 5 . ( $4^{\text {th }}$ grade and up)

Example: Make 100, beginning at 35: Ones first - 35 to 40 is $\underline{\mathbf{5}}$; then, Tens -40 to 100 is $\underline{\mathbf{6 0}}$. Consequently, $5+60=\underline{65}$. I recommend using a number line approach to visually reinforce students' physical understanding of the process:


Level C presses students to Make 100 using any singular point between 0 and 100 . $\left(4^{\text {th }}\right.$ grade and up)

Example: Make 100, beginning at 23: Ones first - 23 to 30 is $\underline{\mathbf{7}}$; then, Tens -30 to 100 is $\underline{\mathbf{7 0}}$. Consequently, $7+70=\underline{\mathbf{7 7}}$. Again, as in Level B, I recommend using a number line approach to visually reinforce students' physical understanding of the process:
3.) Making 1,000 (Levels A and B) - These two Levels (A and B) with multiple Practice versions augment students' general numeracy ability and expand their understanding of Base 10 mechanics. Level $A$ is multiples of 100 ; whereas, Level $B$ are the midpoints between 100 (e.g., $50,150,250,350$, etc.) The same pedagogical process and sequential process should be followed for Making 100 (Levels A, B, and C) described above. Recommended time limit is 5 minutes. (Third Grade (only) on Level A)

Example: Make 1,000, beginning at 450: Tens first - 450 to 500 is $\mathbf{5 0}$; then, hundreds -500 to 1,000 is $\mathbf{5 0 0}$. Consequently, $50+500=\mathbf{5 5 0}$. Again, when using Level B, I recommend using a number line approach to visually reinforce students' physical understanding of the process:

4.) Making $\mathbf{1 0 , 0 0 0}$ (Levels $A$ and $B$ ) - Level $A$ is multiples of 1,000 ; whereas, Level $B$ includes the midpoints between 1,000 (e.g., 500; 1,500; 2,500; 3,500; etc.) The same pedagogical and sequential process should be followed for Making 100 and 1,000 as outlined above. Recommended time limit: 5 minutes. Note the star $\boldsymbol{*}$ indicates the expected completion of this exercise. (Optional exercise in Making 10 series - Third Grade (only) on Level A)

Note: Usually at this point in the Making series, students can be given the Making 10,000 assessments directly if student mastery standards have been maintained throughout the instructional and student preparation process.
5.) Making 1.00 (Levels A and B) - Level $A$ is used to master the nearest tenth; whereas, Level $B$ may be the location of any 0.01 point between 0 and 1.00 . This exercise is critical for students to mentally compute the distances between quarter points and whole numbers when working with decimal numbers. It also presses that Base 10 number mechanics apply to both whole numbers and decimals. Recommended time limit is 5 minutes. ( $4^{\text {th }}$ grade and up)

Example: Make 1.00, beginning at 0.27: Hundredths first -0.27 to $0.30 / 0.3$ is $\mathbf{0 . 0 3}$; then, tenths $-0.30 / 0.3$ to 1.00 is $\mathbf{0 . 7}$ or $\mathbf{0 . 7 0}$. Consequently, $0.03+0.70=\underline{\mathbf{0 . 7 3}}$. Again, it is strongly recommended to thoroughly practice with a number line approach to visually reinforce students' physical understanding of the process:


Note: With sufficient learning opportunities, students become very adept at these numeracy activities and cement their understanding of Base 10 mathematics and its inherent power.

Note: It is often an elementary school's goal to increase their children's numeracy ability. If that objective is to be realized, numeracy must be directly addressed and practiced with student accountability.

## First (1st) Grade

 Resources
## Making 10 with Dots - P1

Use for Addition - Developing Numeracy Sense - Base 10
Directions: Calculate the number of dots to needed to "Make 10" or sum to 10.

A.) | $O$ | $O$ | $O$ | $O$ |
| :--- | :--- | :--- | :--- |
|  |  |  |  |

B.) | O | O | O | O |
| :--- | :--- | :--- | :--- |
| O | O |  |  |

$7+\square=10$

C.) | $O$ | $O$ | $O$ | $O$ |
| :--- | :--- | :--- | :--- |
|  |  |  |  |

$5+\square=10$

2.) | O | 0 | 0 |
| :--- | :--- | :--- |
| 0 | 0 | 0 |
| O | 0 | 0 |

$8+\square=10$
E.)

F.)

$10+\square=10$
$9+\square=10$
G.)

$3+\square=10$
H.)

$1+\square=10$

Directions: Calculate the number of dots to needed to "Make 10 " or sum to 10.
A.)

$3+\square=10$
B.)

$6+\square=10$
C.)

$4+\square=10$
D.)

$9+\square=10$
E.)

$8+\square=10$
F.)

$10+\square=10$
G.)


$$
1+\square=10
$$

H.)

$2+\square=10$

[^0]
# Making 10 with Dots - P1 

Answer Key Use for Addition - Developing Numeracy Sense - Base 10
Directions: Calculate the number of dots to needed to "Make 10 " or sum to 10 .

A.) | O | O | O | O |  |
| :--- | :--- | :--- | :--- | :--- |
|  |  |  |  |  |

B.) | O | O | O | O | O |
| :--- | :--- | :--- | :--- | :--- |
| O | O |  |  |  |

$7+3=10$

C.) | O | O | O | O | O |
| :--- | :--- | :--- | :--- | :--- |
|  |  |  |  |  |
|  |  |  |  |  |

$5+5=10$

D.) | O | O | O | O | O |
| :--- | :--- | :--- | :--- | :--- |
| O | O | O |  |  |

$8+2=10$
E.)

F.)

$10+0=10$
$9+1=10$
$3+7=10$
H.)

$1+9=10$

Directions: Calculate the number of dots to needed to "Make 10" or sum to 10.
A.)

$3+7=10$
B.)

$6+4=10$
C.)

$4+6=10$
D.)

$9+1=10$
E.)


$$
8+2=10
$$

F.)

$10+0=10$
G.)

$1+9=10$
H.)

$2+8=10$

## Making 10 with Dots - P2

Use for Addition - Developing Numeracy Sense - Base 10
Directions: Calculate the number of dots to needed to "Make 10" or sum to 10 .

A.) | $O$ | $O$ | $O$ |  |
| :--- | :--- | :--- | :--- |
|  |  |  |  |

B.)


c.) | O | O | O | O |
| :--- | :--- | :--- | :--- |
| O |  |  |  |

$6+\square=10$

2.) | 0 | 0 | 0 |
| :--- | :--- | :--- |
| 0 | 0 | 0 |
| 0 | 0 | 0 |

$9+\square=10$
E.)

F.)

$10+\square=10$

Directions: Calculate the number of dots to needed to "Make 10" or sum to 10.
A.)

$5+\square=10$
B.)

$3+\square=10$
C.)
 $5+\square=10$
D.)

$8+\square=10$
E.)

$7+\square=10$
F.)

$4+\square=10$
G.)

$0+\square=10$
H.)

$1+\square=10$

## Making 10 with Dots - P2

Use for Addition - Developing Numeracy Sense - Base 10
Directions: Calculate the number of dots to needed to "Make 10" or sum to 10.

A.) | $\bigcirc$ | $O$ | $O$ |  |  |
| :--- | :--- | :--- | :--- | :--- |
|  |  |  |  |  |

B.)


C.) | O | O | O | O | O |
| :--- | :--- | :--- | :--- | :--- |
| O |  |  |  |  |

$6+4=10$

D.) | O | O | O | O | O |
| :--- | :--- | :--- | :--- | :--- |
| O | O | O | O |  |

$9+1=10$
E.)

F.)

G.)

H.)

$10+0=10$
$5+5=10$
$4+6=10$
$2+8=10$

Directions: Calculate the number of dots to needed to "Make 10" or sum to 10.
A.)

$5+5=10$
B.)

$3+7=10$
C.)

$5+5=10$
D.)

$8+2=10$
E.)

G.)

$0+10=10$
H.)

$1+9=10$

## Making 10 - Level A -

## Making 10 Directions:



## Making 10 - Level A - P1

Making 10 Directions:


# Making 10 - Level A - P2 

Making 10 Directions:


## Making 10 - Level A - P2

Making 10 Directions:


## Making 10 - Level A-3

## Making 10 Directions:



## Making 10 - Level A - P3

Making 10 Directions:


## Making 10 - Level B - P1

## Making 10 - Level B-P1

## Making 10 - Level B-P2

## Making 10 - Level B - P2

## Second ( $2^{\text {nd }}$ ) Grade

 Resources$2$
$2$
$2$
$2$


## Making 10 - P1

## Making 10 - P1

## Making 10-P2

Making 10 -

## Making 100 - Level B

## Making 100 - Level B

## Making 100 - Level C

## Making 100 - Level C

## Making 1,000 - Level A

## Making 1,000 - Level A

## Making 1,000 - Level B

Making 1,000-B Directions: Fill in each box so the two numbers SUM to a total of $\mathbf{1 , 0 0 0}$.
Add up. Example: $250 \quad 250$ to $300=\mathbf{5 0} 300$ to $1,000=700 \quad$ Therefore, 50

## Making 1,000 - Level B

Making 1,000-B Directions: Fill in each box so the two numbers SUM to a total of $\mathbf{1 , 0 0 0}$.
Add up. Example: $250 \quad 250$ to $300=\mathbf{5 0} 300$ to $1,000=700 \quad$ Therefore, 50

## Making 10,000 - Level A

## Making 10,000 - Level A

## Making 10,000 - Level B

## Making 10,000 - Level B

## Making 1 Whole - Level A

## Making 1 Whole - Level A

## Making 1 Whole - Level B

## Making 1 Whole - Level B


[^0]:    Copyright © 2015, Celestial Numeracy, LLC and www.thenew3rseducationconsulting.com

