**Candy Quick Flash**

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| **This lesson should occur after the Partner Quick Flash lesson, which introduces conceptual subitizing. Candy Quick Flash continues to encourage conceptual subitizing an efficient way to find “how many”.***Perceptual subitizing: instantly recognizing “how many” in a set**Conceptual subitizing: efficiently finding “how many” by recognizing and combining subgroups within a set* |

**NC Mathematics Standards:**

**Understand addition and subtraction.**

**NC.K.OA.6:** Recognize and combine groups with totals up to 5 (conceptual subitizing).

**Standards for Mathematical Practice:**

2. Reason abstractly and quantitatively.

7. Look for and make use of structure.

**Student Outcomes:**

* I can use subitizing to help find “how many”.
* I can be flexible and efficient when finding “how many”.

**Math Language:**

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| * Count
* How many?
* Set
* Numerals: 1, 2, 3, 4, 5
 | *Students should be exposed to, but not held accountable for using:** Subitize
* Flexible
* Efficient
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**Materials:**

* *Candy Quick Flash* cards (one set for each group of 4 students)

**Advance Preparation**:

* Print and cut *Candy Quick Flash Cards* (1 set for per group of 4 students).
* Prior to lesson, have class walk several routes to and from the cafeteria. Some routes should be direct and others indirect. This will support a discussion around *flexibility* and *efficiency*.

**Launch:**

1. Review two components of fluency: *flexibility* and *efficiency*. (2-3 minutes)
	* Discuss: We have found many ways to walk to and from the cafeteria. We are *flexible* when we know many ways to do something. We are *efficient* when we choose the easiest way, taking the least amount of steps. What is an *efficient* way to walk from the cafeteria to our classroom?
	* Say: Mathematicians are *flexible* when they know many ways to solve a problem. They are *efficient* when they choose the easiest way that takes the least number of steps. Today, we will work to be *flexible* and *efficient*.
	* Say: Subitizing helps us be efficient when finding “how many”. Instead of counting each item, we can subitize, or instantly know the amount without counting. We can subitizing the whole set or parts of a set.
2. Do a whole-group quick flash (3-5 minutes).
	* Say: Let’s practice *efficiently* finding “how many”. I will show you a set of items. Instead of counting each item, try to subitize the whole set or parts of the set.
	* Display a *Candy Quick Flash* cardfor 3-4 seconds.
	* Say: Put your thumb to your chest when you know how many items are on the card.
	* Ask: How many items are on the card? How did you find “how many”?
	* Share some strategies students may not have mentioned.

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| Examples of strategies: |
|  | “I counted 1, 2, 3, 4.” |
|  | “I saw/subitized 3 and 1. I know that makes 4.” |
|  | “I saw/subitized 3. Then, I counted on from there…4.” |
|  | “I saw 2 dots on top. Then, I said 3, 4.” |

* + Say: We are *flexible* because we know many ways to find the amount. Choosing the easiest that takes the least number of steps means we are *efficient*.
	+ Say: Keep working on being *flexible* and *efficient* as we complete today’s activity.
1. Explain directions for “Candy Quick Flash”. (2-3 minutes)
	* Groups of four students place a set of *Candy Quick Flash Cards* face down.
	* One student takes a card and shows it to the group for 3-4 seconds.
	* Group members give a thumbs up when they know the amount of items on the card.
	* Group members share how they found the amount.
	* Repeat, allowing each group member to hold up a card for the group.

**Explore:**

1. Allow 5 minutes for groups to complete the quick flash.
	* Observe strategies used. Ask questions to elicit thinking. For example:

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| **Strategy used…** | **Questions to ask…** |
| Count all items individually.*1, 2, 3, 4* | * Is there an easier way to find “how many” without counting every item?
* What parts do you see?
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| Count items individually,then notice parts.*1, 2, 3, 4…That’s 4! I see 2 and 2*. | * Rather than count every item, how could use the parts you saw to find “how many”?
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| Instantly see (subitize) a subgroup within the set, and count on.*2…3, 4* | * You subitized part and counted on. Is this an efficient way to find “how many”? Explain.
* Are there other ways to use subitizing to help you find “how many”?
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| Instantly see (subitize) subgroups and know a corresponding fact.*2 and 2 makes 4* | * How could you teach a friend to use this strategy?
* Is this an efficient way to find “how many”? Explain.
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* + Select students to share strategies for the “Discuss” phase of the lesson and determine a sequence in which they will share. In order to directly compare strategies, focus the sharing around one or two pre-determined cards.

**Discuss:**

1. Bring class together for a discussion about strategies used during the activity. (10 minutes)
	* Show a *Candy Quick Flash Card.*
		+ Have pre-selected students share strategies for finding the quantity.
		+ Ask the class: How were our classmates’ strategies the same? Different?
	* Show another *Candy Quick Flash Card.*
		+ Have pre-selected students share strategies for finding the quantity.
		+ Say: Think to yourself… Later, we will do this activity again. If you see this card, which strategy would you like to use? For you, which is the most efficient?
	* The goal of this lesson is to use conceptual subitizing as an efficient way to finding “how many”. Highlight strategies that relate to conceptual subitizing.

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| Examples of Conceptual Subitizing: |
|  | “I subitized 2 and 3. I know that makes 5.” |
|  | “I saw 3. Then, I counted on…4, 5.” |
|  | “I subitized 2. Then, I counted 3, 4, 5.” |

* + Remind students: Mathematicians are *flexible* when they know many ways to solve problems. They are *efficient* when they choose the easiest way, which takes the least number of steps. Whenever you try to find “how many”, you can be efficient by subitizing the whole set or parts of the set rather than counting each dot individually.

**Evaluation of Student Understanding:**

**Informal Evaluation:**

Replay *Candy Quick Flash* in a teacher-led small group or throughout the week in math centers/stations. Observe to see if students count dots individually, subitize one part and count on, or subitize multiple parts and know the matching addition fact.

**Meeting the Needs of the Range of Learners:**

* If students struggle to use conceptual subiziting, it may be necessary to practice perceptual subitizing within 5 using familiar configurations (e.g., dots on a die or dots).

**Extensions:**

* Make whole-group quick flashes part of your daily math routine. Encourage students to share their strategies, highlighting those that focus on conceptual subitizing.
* Laminate and use Candy Quick Flash Cards in math centers. Partners can do a quick flash, sort by quantity, or match sets to written numerals.

**Possible Misconceptions/Suggestions:**

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| **Possible Misconception** | **Suggestion** |
| Students may want to say they are subitizing when they are actually counting items individually.  | Be aware of the strategies students are using, and help articulate them. Nudge students toward subitizing one or more subgroups in order to find the total amount. |

**Special Notes:**

* Perceptual subitizing means to instantly see “how many”. Conceptual subitizing means to find “how many” by recognizing and combining subgroups within a set. For example:
	+ Subitize part and count on from there.
	+ Subitize multiple parts and know a corresponding addition or multiplication fact.
	+ Subitize multiple parts and use skip counting.
* Because conceptual subitizing requires the application of perceptual subitizing, students must have many experiences with perceptual subitizing prior to this lesson.
* Fluency means to be flexible, efficient, and accurate. When students learn a variety of strategies and when to apply them, they are flexible. Once students are flexible, they become efficient by selecting the strategy that requires the least amount of effort. Flexibility and efficiency will lead to accuracy.

**Candy Quick Flash Cards**



