

## **Design Template for Differentiated Instruction Professional Development**

**Component:** Cubes/ThinkDots

**Design Team Members:** Diane Tusing, Michelle Loudermilk, Terry Smith

**Length of Time:** 90 minutes-This presentation should be accompanied by the Cubing/Think Dots Power Point. Introduce PD with Slide #1.

**Essential Questions:**

How can cubing and ThinkDots invite more flexible and responsive sense-making?

**Participants will Know:** (Slide #2)

Key principles of effective differentiation as related to cubing and ThinkDots.

**Participants will Understand:** (Slide #3)

How and when to apply cubing/ThinkDots.

Practical applications and skills of cubing/ThinkDots as related to differentiation.

**Participants will be able to Do (Skills):** (Slide #4)

Effectively create and implement cubing/ThinkDots activities.

**Activating Prior Knowledge:** (Slide #5 & 6)

(Allow approximately 10 minutes)

(Use Handout A)

**Purpose:** This activity will help participants to assimilate the cube as a representation of differentiated processing that effects student understanding.

**HOOK**

- Have participants seated in content area groups.
- Each group will have a 3-dimensional cube.
- A recorder will write the group's top three responses on the poster paper at the front of the room.
- Trainer will refer to Debriefing slide # 6 to initiate discussion of their cube responses in relation to their prior knowledge of what a cube could be used for.

**Specialized Vocabulary:** (Slide #7)

(Allow approximately 10 minutes)

(Use Table Vocabulary Cards)

(Bloom's Taxonomy Handout B)

**Purpose:** This activity will help participants apply vocabulary to cubing/ThinkDot as activities that differentiate process.

- The trainer will introduce the vocabulary by placing word placards on each table from the list below.
- Using the vocabulary the participants will define their word in relation to the object. i.e. candy bar.

Describe

Compare

Associate

Analyze

Apply

Argue for or against

- Participants will compare their responses to the definitions using slide # 7. This will involve a whole group discussion. Participants will be given a copy of Bloom's Taxonomy (Handout B) at the conclusion of the discussion in order to utilize the vocabulary in the Active Learning Activity.

**Active Learning:** (Slide # 8-23)

(Allow 45 minutes)

(Use Cubing Statement Handout A, Bloom's Taxonomy Handout B, Directions for Cubing Handout C, Directions for ThinkDots Handout D, Cubing/ThinkDots Template Handouts F & G)

**Purpose:** This activity will help participants to effectively create cubing/ThinkDots activities.

- Participants should bring a subject area unit plan to use in creating their cube/think dot.
- Participants will break into subject area groups in order to begin creating their choice of a cube/ThinkDot example.
- The trainer will direct the participants to utilize (Handouts C & D) the preprinted directions that include steps to create cubes/think dots.

- The trainer will direct the participants to use the cubing/ThinkDots template (Handout A) to begin writing their activities on.
- Resource baskets will be placed on each table for participants to use.
- Participants will use a rubric to evaluate the success of their cubes/ThinkDots activities as table or subject area groups and share (Slide 24 & 25).

**Reflection:**

(Allow approximately 10 minutes)

- Participants will answer the three reflective questions on (slide #26) on an index card as an exit card.

**Next Steps:**

(Allow approximately 10 minutes)

(Use Action Plan Worksheet Handout E)

- Participants will create an individual action plan that will answer questions what, who, when? (Slide 27 & 28)

**Materials/Resources needed for professional development session:**

**HOOK:**

- 3M chart paper
- Markers
- 3-D cube

**Specialized Vocabulary Session:**

- Cubing Statement (Handout A)
- Vocabulary Table Cards
- Vocabulary prompt-tangible item i.e. chocolate kiss, M&Ms, etc.

**Active Learning Session:**

- Cube/ThinkDot template for each participant(Handout F & G)
- Direction Handout for Cubing/ThinkDots(Handouts C & D)
- Bloom's Taxonomy (Handout B)
- Resource Basket for each table: Scissors  
Tape (cube)  
Pencil/pen  
Markers (think dots)  
Hole Punch (think dots)

1" Book Rings (think dots)

**Reflection:**

- Index cards
- Pen/Pencil

**Next Steps:**

- Action Plan (Handout E)

# CUBING STATEMENTS

- **Describe it:** Look at the subject closely (perhaps with your physical senses as well as your mind).
- **Compare it:** What is it similar to? What is it different from?
- **Associate it:** What does it make you think of? What comes to your mind when you think of it? Perhaps people? Places? Things? Feelings? Let your mind go and see what feelings you have for the subject.
- **Analyze it:** Tell how it is made. What are its traits and attributes?
- **Apply it:** Tell what you can do with it. How can it be used?
- **Argue for or against:** Take a stand. Use any kind of reasoning you want-logical, silly, anywhere in between.

# DIRECTIONS FOR CUBING

- **First Step: (use on of the cubes)**
  - Write 6 questions that ask for information on the selected unit.
  - Use your 6 levels of Bloom intelligence levels or any of the cubing statements to design questions.
  - Make questions that use these levels that probe the specifics of your unit.
  - Keep one question opinion based---no right or wrong.
- **Second Step: (use other cubes)**
  - Use the first cube as your average cube, create 2 more using one as a lower level and one as a higher level.
  - Remember all cubes need to cover the same type of questions, just geared to the three levels.
  - Label your cubes so you know which level of readiness you are addressing.
- **Third Step:**
  - Always remember to have an easy problem on each cube and a hard one regardless the levels.
  - Color code the cubes for easy identification, also if students change cubes for questions, for learning style groups.
  - Decide on the rules. Will the students be asked to do all 6 sides? Roll and do any 4 sides? Do any two questions on each of the cubes?
- **Places to get questions**
  - Old quizzes, worksheets, textbook-study problems.

# DIRECTIONS FOR THINK DOTS

- **First Steps:**
  - For each readiness level, write six activities on the pre-printed think dots template should be created.
  - Use your 6 levels of Bloom intelligence levels or any of the think dots statements to write a activity for each card.
  - Make the questions that use these levels probe the specifics of your unit.
  - Keep one question opinion based—no right or wrong.
- **Second Steps:**
  - Then cut each page into the six sections.
  - On the back of each card, dots corresponding to the dots on the faces of a die should be drawn on each of the six sections of the page.
  - Use the hole punch to make holes in one corner or in the top of each activity card.
  - Use a 1” metal ring to hold each set of six cards together.
  - Teacher may create an Activity Sheet to correspond to the lesson for easy recording and management.

## Bloom's Taxonomy

### **Lower Level**

#### ***Knowledge-factual answers, recognition, testing recall***

Terms: who, how why, what, tell, know, where, name, label, omit, when, list, define, select, choose, specify, match, record, identify, numerate, describe, recount, memorize, recall

#### ***Comprehension-translating, interpreting, extrapolating***

Terms: cite, tell, infer, report, show, explain, identify, locate, discuss, classify, describe, indicate, translate, recognize, summarize, paraphrase

### **Middle Level**

#### ***Application- to situations that are new, unfamiliar, or have a new slant; apply rules, laws methods, theories***

Terms: use, solve, select, teach, show, collect, relate, explain, transfer, exhibit, predict, informs, practice, classify, compute, illustrate, determine, produce, establish, develop, simulate, experiment, demonstrate, discover, dramatize

#### ***Analyze-breaking down into parts, forms identifying motives or causes, making inferences, finding evidence to support generalizations; clarifying, concluding***

Terms: probe, survey, dissect, outline, contrast, identify, compare, examine, discover, organize, correlate, illustrate, prioritize, combine, separate, diagram, differentiate, distinguish, categorize, investigate, subdivide

### **Higher Level**

#### ***Synthesis- combining elements into a pattern not clearly there before, ability to put parts together to form a new whole***

Terms: make, plan, adapt, invent, create, develop, translate, design, initiate, generate, make up, compose, propose, predict, integrate, originate, rearrange, assemble, collaborate, categorize, hypothesize, formulate, incorporate

#### ***Evaluation- according to some set of criteria, and state why; ability to judge value for purpose; judging the value of something***

Terms: rate, judge, revise, choose, critique, defend, justify, decide, assess, contrast, support, compare, criticize, support, validate, determine, recommend, appraise, conclude, interpret



# Cubing/Think Dots Action Plan Worksheet

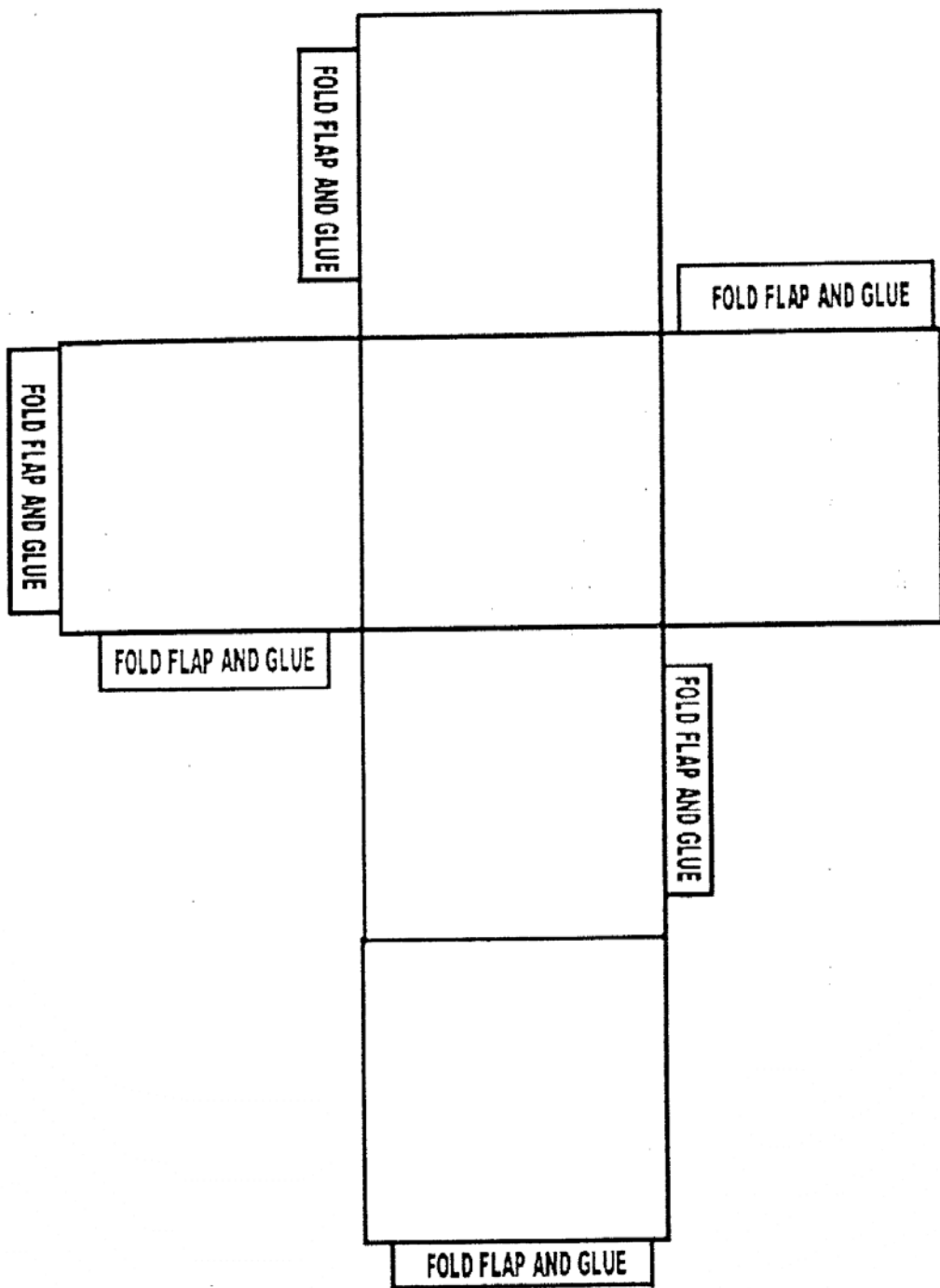
After attending training such as this, you are more likely to implement the ideas you have learned if you make specific plans for follow-up. Prepare an action plan to implement Cubing/Think Dots.

**Goal:**

**Implement Cubing/Think Dots as a strategy to support differentiation**

<b>What do you need to do?</b>	<b>Who's Responsible</b>	<b>Completion Time</b>	<b>Comment</b>

Handout F




# Think Dots

**Title:**

