

# Diagnostic TASK

## FOCUS

### Understand Units

- Key Understandings 1, 2, 3, 4, 5, 6

### Direct Measure

- Key Understanding 1, 2, 3, 5

### Indirect Measure

- Key Understanding 1, 4

## Ice Cream Puddles

K–Year 7

### Purpose

To investigate what the child knows about:

- the attribute of area
- directly comparing area
- using units to measure and compare areas
- using rectangular arrays and area formula as a shortcut.

### Materials

Cardboard cut-out of the two ice cream puddles

A variety of objects for use as units, e.g. 1 cm and 2 cm cubes, tiles, marbles, pattern blocks, round counters

A collection of measuring equipment that extends beyond that required to measure area, e.g. balance scales, measuring cylinders, string, measuring tape, ruler, pencil, scissors, glue, plain paper, square grid paper; also, a container of sand, rice or water

Teacher Recording Sheet

### Producing work samples

#### Individual interview

Hand the child the cut-out of the two puddles and present this scenario: On a very hot day, two children drop their ice creams on the ground. They melt, making two ice cream puddles.

1. Ask, *Which puddle is bigger? Are you sure? Show me how you know.* Prompt the child to pick up the puddles if they do not choose to superimpose.
2. Point to the puddle they have chosen as the largest and ask, *How big is that puddle?* If necessary prompt the child to use the materials, *Can you use the materials to work it out?*

3. If the child uses materials that are easy to count, ask them to compare the two puddles, *How much bigger is that puddle (the one they have chosen) than the other one?* If they choose to draw a grid across the puddle, then do not ask them to compare the two puddles.
4. If the child **does not** use the materials to work out the size of the first puddle, or if they use materials that are not easy to count, such as sand or string, then prompt again by asking, *How much bigger is that puddle (the one chosen) than the other one?*

Ask the child to write/draw what they did to work it out. Record observations on the record sheet provided.

### **Small group**

This task may be administered to a small group of middle and upper primary students using the instructions above. Each student needs a copy of the two puddles and easy access to the materials listed above. Ask them to write and draw what they did to work it out. Note what individual students say and do throughout the activity, using the record sheet.

# Ice Cream Puddles: Teacher Recording Sheet

Name \_\_\_\_\_ Year \_\_\_\_\_ Date \_\_\_\_\_

Say: On a very hot day, two children drop their ice creams on the ground. They melt, making two ice cream puddles.

**1. Which puddle is bigger? Are you sure? Show me how you know.**

If necessary, prompt the child to pick up the puddles.

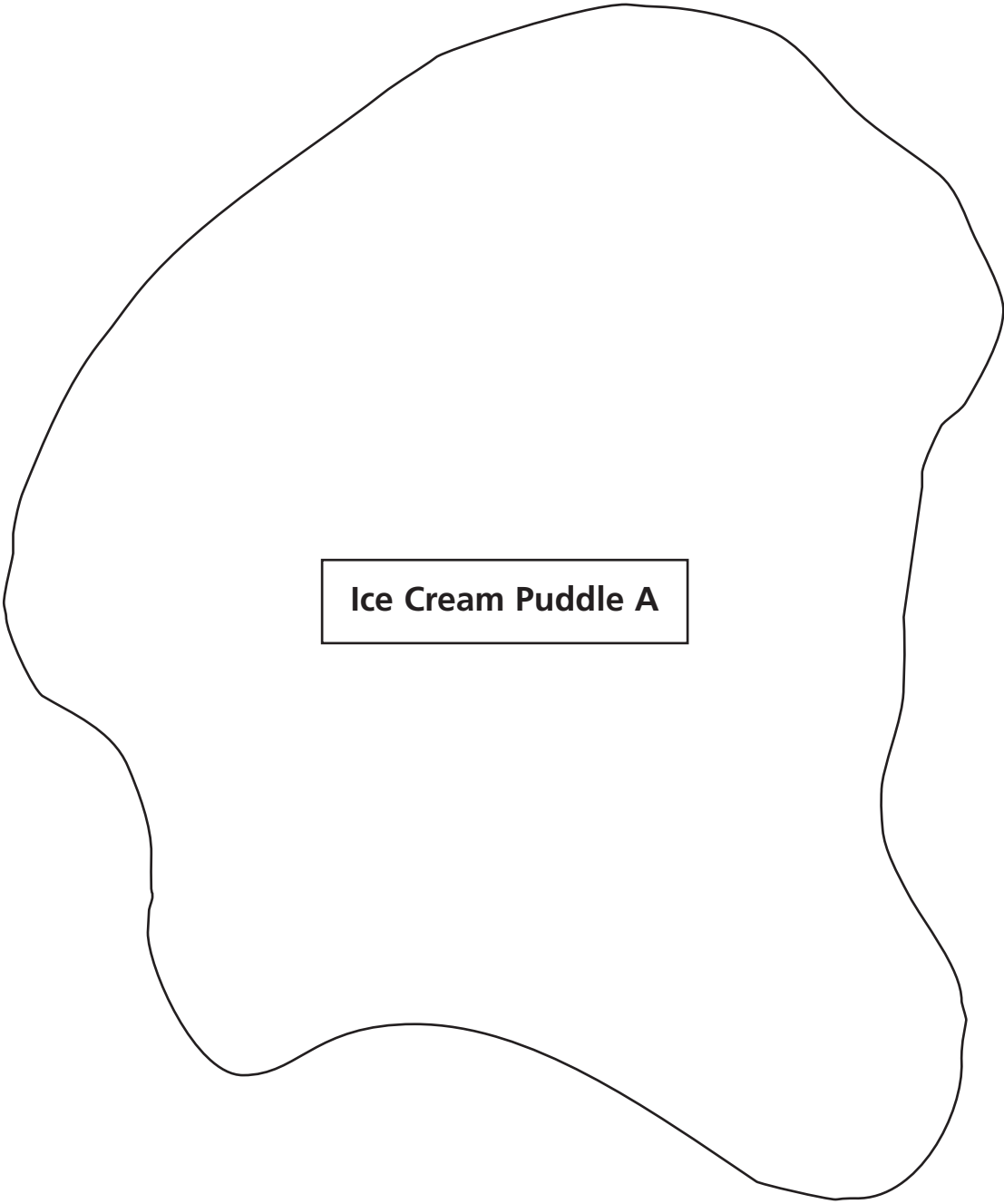
**2. Point to the puddle they have chosen as the largest. How big is that puddle?**

If necessary, prompt with, **Can you use the materials to work it out?**

**3. If the child uses materials that are easy to count, ask, How much bigger is that puddle (the one they have chosen) than the other one? If the child chooses to draw a grid across the puddle, then do not ask them to compare the puddles.**

**4. If the child *does not* use the materials to work out the size of the first puddle, or uses materials that are not easy to count, such as sand or string, prompt with, How much bigger is that puddle (the one chosen) than the other one?**

# Ice Cream Puddles



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