

## Supplementary Material: Guideline for Experiment

“Experiment using watery starch paste and watery iodine solution”

### [Purpose]

- (1) By washing your hands, you can visualize the starch left on your hands and find out any parts which have not been washed off thoroughly.
- (2) Find out and practice the method of washing that is suitable for you based on the parts which have not been washed off thoroughly.

### [Method]

Utilize the “Iodo-Starch Reaction” (which means a reaction in which colorless or white starch stains bluish purple with brown iodine solution).

### [Preparation]

#### 1. Materials / Tools (for 30 persons)

- Starch (cornstarch, etc.): approximately 2 tablespoons
- Water: approximately 2 cups (400 mL)
- Gargling mouthwash containing iodine (subject to taking into consideration the safety)
- Pan, heater, spoon, soap, paper, etc.

#### 2. Making starch paste (the day before the experiment)

- (1) Put 2 tablespoons of starch in 2 cups of water (40°C or below) and mix together well.
- (2) Continue to mix together well over low heat.
- (3) As the temperature rises, it gradually becomes thickened. Be careful not to harden it at the bottom of the pan and continue to stir carefully.
- (4) While heating over low heat for 20 to 30 minutes, the whole of a mixture becomes thickened. Turn off the heat before boiling and leave it until the temperature is sufficiently lowered. (Be sure to lower the temperature sufficiently because there is a risk of burns if used while the temperature is still high. Children do not need to participate in this work, so make it the day before the experiment.)



### [Experiment]

- (1) Take 1 tablespoon of starch paste and firmly rub it from the wrist to the tips of the fingers as well as between fingers and nails. Continue to rub your hands until they get completely dry. (3-5 minutes)
- (2) When your hands get completely dry, wash your hands with water in the same way as you always wash your hands. (\*you wash your hands without soap because this experiment focuses to determine whether you wash your hand properly.)
- (3) Dry your hands well again.
- (4) When your hands get dry, drop 1 tablespoon of gargling mouthwash (which is provided from your teacher) on your hands and spread it out on both hands.
- (5) Wipe the wet part gently with paper in order to improve visibility of stained starch (if any).



If there is any part that is stained bluish purple, this is the part where starch remains. In other words, it indicates that it is the part that has not been washed off thoroughly by hand washing as mentioned above.

- \* The amount and concentration of starch paste and iodine solution as described above are intended only for a guide. When the concentration of starch paste or iodine solution is low, the chemical reaction is less likely to appear. If the stain is too dark, it may appear in black instead of bluish purple, which may make it difficult to wash off after the experiment. Determine the appropriate color density while trying it at the preparation stage.