

Pure Substances and Mixtures in Code	Grade 7 Pure Substances and Mixtures
Solutions Handout	

Here is the link to a completed program: <https://scratch.mit.edu/projects/722945837>

Glass of Water (Pure Substance)

The Scratch code for 'Glass of Water' consists of two main scripts. The first script, 'when this sprite clicked', asks the user 'Is this a pure or mixed substance?'. If the answer contains the word 'pure', it says 'Nicely done! This is a pure substance!' for 3 seconds, broadcasts 'Water Correct', and hides. Otherwise, it says 'Remember, mixtures are made up of multiple pure substances.' for 3 seconds and broadcasts 'Incorrect'. The second script, 'when green flag clicked', shows the sprite and listens for the 'Taco Correct' broadcast, at which point it hides.

Taco (Mixture)

The Scratch code for 'Taco' consists of two main scripts. The first script, 'when this sprite clicked', asks the user 'Is this a pure substance or a mixture?'. If the answer contains the word 'mixture', it says 'Nicely done! This is a mixture!' for 3 seconds, broadcasts 'Taco Correct', and hides. Otherwise, it says 'Remember, pure substances are made up of only one type of atom.' for 3 seconds and broadcasts 'Incorrect'. The second script, 'when green flag clicked', shows the sprite and listens for the 'Water Correct' broadcast, at which point it hides.

Milk (Mixture)

```

when this sprite clicked
  ask [Is this a pure substance or a mixture?] and wait
  if (answer contains mixture ?) then
    say [Nicely done! This is a mixture!] for 3 seconds
    broadcast [Correct]
    hide
  else
    say [Remember, pure substances are made up of only one type of atom.] for 3 seconds
    broadcast [Incorrect]

when green flag clicked
  hide
  forever loop
    if (key 9 pressed?) then
      show
  
```

Cake (Mixture)

```

when this sprite clicked
  ask [Is this a pure substance or a mixture?] and wait
  if (answer contains mixture ?) then
    say [Nicely done! This is a mixture!] for 3 seconds
    broadcast [Correct]
    hide
  else
    say [Remember, pure substances are made up of only one type of atom.] for 3 seconds
    broadcast [Incorrect]

when green flag clicked
  hide
  forever loop
    if (key 9 pressed?) then
      show
  
```

Gold (Pure Substance)

The code for Gold (Pure Substance) consists of two scripts. The first script, triggered by 'when this sprite clicked', asks the user 'Is this a pure substance or a mixture?' and waits for an answer. It then uses an 'if' block to check if the answer contains the word 'pure'. If true, it says 'Nicely done! This is a pure substance' for 3 seconds, broadcasts 'Correct', and hides the sprite. If false, it says 'Remember, mixtures are made up of multiple pure substances.' for 3 seconds and broadcasts 'Incorrect'. The second script, triggered by 'when clicked', hides the sprite and enters a 'forever' loop that checks if the key '9' is pressed. If pressed, it shows the sprite.

Sugar (Pure Substance)

The code for Sugar (Pure Substance) is identical to the Gold code. It features two scripts: one for handling the initial click and providing feedback based on the user's answer, and another for a 'forever' loop that toggles the sprite's visibility when the key '9' is pressed.