Name: _____ Date: _____

Browned Food Gets Its Flavor From Heat

Circle group

Think of the smell of toast. Think of roasted potatoes, or a pancake turning golden in a pan. Now think of a boiled potato. It is soft and tasty. But it is pale, and its smell is mild. Why does browned food have so much more flavor?

The answer is a change that cooks call browning. When food gets hot enough, sugars and proteins on its surface react with each other. The reaction makes hundreds of new flavor and smell molecules. It also turns the surface brown. It is named for a scientist who studied it long ago, Louis Camille Maillard. People often call it the Maillard reaction.

Browning needs a lot of heat. It needs more heat than boiling water can reach. This is a trouble for cooks. A wet piece of food stays cool while its water bubbles away. So it steams and does not brown. The fix is to get the surface dry. Cooks pat meat with a towel before it goes in the pan. They also leave space between pieces of food. The steam can escape, and nothing gets damp.

Browning happens in many kitchens every day. It gives bread its crust. It helps coffee beans get their flavor when they are roasted. It makes a seared vegetable taste rich. When food turns golden brown, a lot of flavor has arrived.

Questions

1. What happens to the surface of food during browning?

_____

_____

2. What does browning make besides color?

_____

_____

3. Why does wet food not brown right away?

_____

_____

4. Why do cooks pat meat with a towel?

_____

_____

5. Why do cooks leave space between pieces in a pan?

_____

_____

6. Why is a boiled potato paler and milder than a roasted one?

_____

_____

Words to know

browning: the change that turns food golden brown and adds flavor
reaction: a change that happens when substances meet and become something new
molecules: the tiny pieces that make up all matter
seared: cooked quickly on the outside at high heat
surface: the outside layer of something

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

Name: _____ Date: _____

Browned Food Gets Its Flavor From Heat

Triangle group

Think about the smell of toast, roasted potatoes, or a pancake as it turns golden in a pan. Now think about a boiled potato. It is soft and tasty, but it is pale and has a much milder smell. Why does browned food seem to have so much more flavor?

The answer is a change that cooks call browning. When food gets hot enough, sugars and proteins on its surface react with each other. The reaction makes hundreds of new flavor and smell molecules, and it also turns the surface brown. It is named for a scientist who studied it long ago, Louis Camille Maillard, and people often call it the Maillard reaction.

Browning needs a lot of heat, hotter than boiling water can ever get. That causes a trouble for cooks. A wet piece of food stays cool while its water bubbles away, so it steams instead of browning. The solution is to get the surface dry. Cooks pat meat with a towel before they put it in the pan. They also leave space between pieces of food, so the steam can escape instead of making everything damp.

Browning takes place in many kitchens every day. It gives bread its crust, helps coffee beans develop flavor when they are roasted, and makes a seared vegetable taste rich. When food turns golden brown, the cook knows that a lot of flavor has arrived.

Questions

1. What happens to the surface of food during browning?

_____

_____

2. What does the browning reaction make besides color?

_____

_____

3. Why does a wet piece of food not brown right away?

_____

_____

4. Why do cooks pat meat with a towel before cooking it?

_____

_____

5. Why do cooks leave space between pieces of food in a pan?

_____

_____

6. Why is a boiled potato paler and milder than a roasted one?

_____

_____

Words to know

browning: the change that turns food golden brown and adds flavor
reaction: a change that happens when substances meet and become something new
molecules: the tiny pieces that make up all matter
seared: cooked quickly on the outside at high heat
surface: the outside layer of something

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

Name: _____ Date: _____

Browned Food Gets Its Flavor From Heat

Square group

Consider the aroma of toast, roasted potatoes, or a pancake turning golden in a hot pan. Now consider a boiled potato, which is soft and perfectly pleasant but pale, with a far milder smell. Why does browned food seem to carry so much more flavor?

The explanation is a chemical change that cooks call browning. When food becomes sufficiently hot, sugars and proteins on its surface react with one another. The reaction produces hundreds of new flavor and aroma molecules, and it simultaneously darkens the surface to a rich brown. It is named for a scientist who studied it long ago, Louis Camille Maillard, and people commonly refer to it as the Maillard reaction.

Browning demands intense heat, hotter than boiling water can ever reach, and that creates a difficulty for cooks. A wet piece of food remains cool while its moisture bubbles away, so it steams rather than browns. The remedy is to dry the surface thoroughly. Cooks pat meat with a towel before placing it in the pan, and they leave space between pieces of food so that the steam can escape instead of dampening everything.

Browning takes place in countless kitchens every single day. It gives bread its crust, helps coffee beans develop their flavor when they are roasted, and makes a seared vegetable taste rich and satisfying. When food turns golden brown, the cook knows that a great deal of flavor has arrived.

Questions

1. What happens to the surface of food during browning?

_____

_____

2. What does the browning reaction produce besides color?

_____

_____

3. Why does a wet piece of food not brown right away?

_____

_____

4. Why do cooks pat meat with a towel before cooking it?

_____

_____

5. Why do cooks leave space between pieces of food in a pan?

_____

_____

6. Why is a boiled potato paler and milder than a roasted one?

_____

_____

Words to know

browning: the change that turns food golden brown and adds flavor
reaction: a change that happens when substances meet and become something new
molecules: the tiny pieces that make up all matter
seared: cooked quickly on the outside at high heat
surface: the outside layer of something

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

For the teacher: Browned Food Gets Its Flavor From Heat

Each student sheet carries a shape, not a level. The same topic and facts, written three ways.

Circle: Browned Food Gets Its Flavor From Heat

Easier · 225 words · Flesch-Kincaid grade 3.1

1. Sugars and proteins react and the surface turns brown.
2. New flavor and smell molecules.
3. It stays cool while its water bubbles away, so it steams.
4. To dry the surface so it can brown.
5. So steam can escape and the food stays dry.
6. Boiling water is not hot enough to brown the surface.

Triangle: Browned Food Gets Its Flavor From Heat

This passage · 233 words · Flesch-Kincaid grade 5.7

1. Sugars and proteins react with each other and the surface turns brown.
2. New flavor and smell molecules.
3. It stays cool while its water bubbles away, so it steams instead.
4. To dry the surface so it can brown.
5. So steam can escape and the food does not get damp.
6. Boiling water is not hot enough to make the surface brown.

Square: Browned Food Gets Its Flavor From Heat

Harder · 237 words · Flesch-Kincaid grade 8.7

1. Sugars and proteins on the surface react with one another and the surface turns brown.
2. Hundreds of new flavor and aroma molecules.
3. It remains cool while its moisture bubbles away, so it steams instead.
4. To dry the surface thoroughly so that it can brown.
5. So the steam can escape instead of dampening everything.
6. Boiling water is never hot enough to brown the surface.