



# Fragrant as a Flower



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## Introduction

The *I Wonder Why* series is a set of science books created specifically for young learners who are in their first years of school. The content for each book was chosen to be appropriate for children who are beginning to construct knowledge of the world around them. These young children ask questions. They want to know about things. They are more curious than they will be when they are a decade older. Research shows that science is students' favourite subject when they enter school for the first time.

Science is both *what* we know and *how* we come to know it. What we know is the content knowledge that accumulates over time as scientists continue to explore the universe in which we live. How we come to know science is the set of thinking and reasoning processes we use to get answers to the questions and inquiries in which we are engaged.

Scientists learn by observing, comparing and organising the objects and ideas they are investigating. Children learn the same way. The thinking processes are among several inquiry behaviours that enable us to find out about our world and how it works. Our five senses – sight, hearing, touch, smell and taste – provide our brains with information about our world. The senses enable us to distinguish one object or event from another. They help us successfully navigate our world, interpret our environment and understand what's happening around us. They warn us of dangers and provide us with pleasant memories.

Each of our senses has its own neural operating system. Each sense organ – the eye, the ear, the skin, the nose and the tongue – takes in environmental information through specialised cells with sensory receptors. That information is transformed into electrical signals that can be read by the brain. These signals are processed in their own respective areas of the brain, which then integrates this sensory information and puts the pieces together. The brain uses the information your senses provide to form useful representations that tell you how to best interact with your environment.

These books about our senses do not try to explain how senses work, but rather present information to sharpen the reader's awareness of their senses and help develop the skills that aid in gathering information and extending perceptions. *Fragrant as a Flower* explores smells. We smell with our noses, and smells can conjure memories of events and often involve emotions. *Quiet as a Butterfly* emphasises that we hear and learn with our ears. *Look and See* introduces the richness of sight. Seeing with our eyes is a powerful sense for learning about the world around us. How and how well we know about something depends on the skill and thoroughness with which we use our senses.

Books in this series use different approaches to take the reader through simple, real-world information. One book is expository, providing factual information. A couple are narratives that take the reader on journeys of the senses. Different literary ways of presenting information bring the content to the reader through a variety of instructional avenues. The illustrations add detail and sometimes humour.

Unlike didactic presentations of knowledge, the content is woven into each book through the reader's point of view. The content is subtle but powerful and memorable, not memorisable. The science activities in the Parent/Teacher Handbook at the back of each book enable learners to conduct their own investigations related to the content. The materials needed for these activities can be obtained easily, and the activities have been tested with children to be sure they are age appropriate. After the reader completes a science activity, re-reading or referring to the book and talking about connections with the activity can be a deepening experience that stabilises the learning as a long-term memory.

My dad likes to tell stories.

One story he tells is about his walk around town  
when he was my age. He had fun exploring smells.

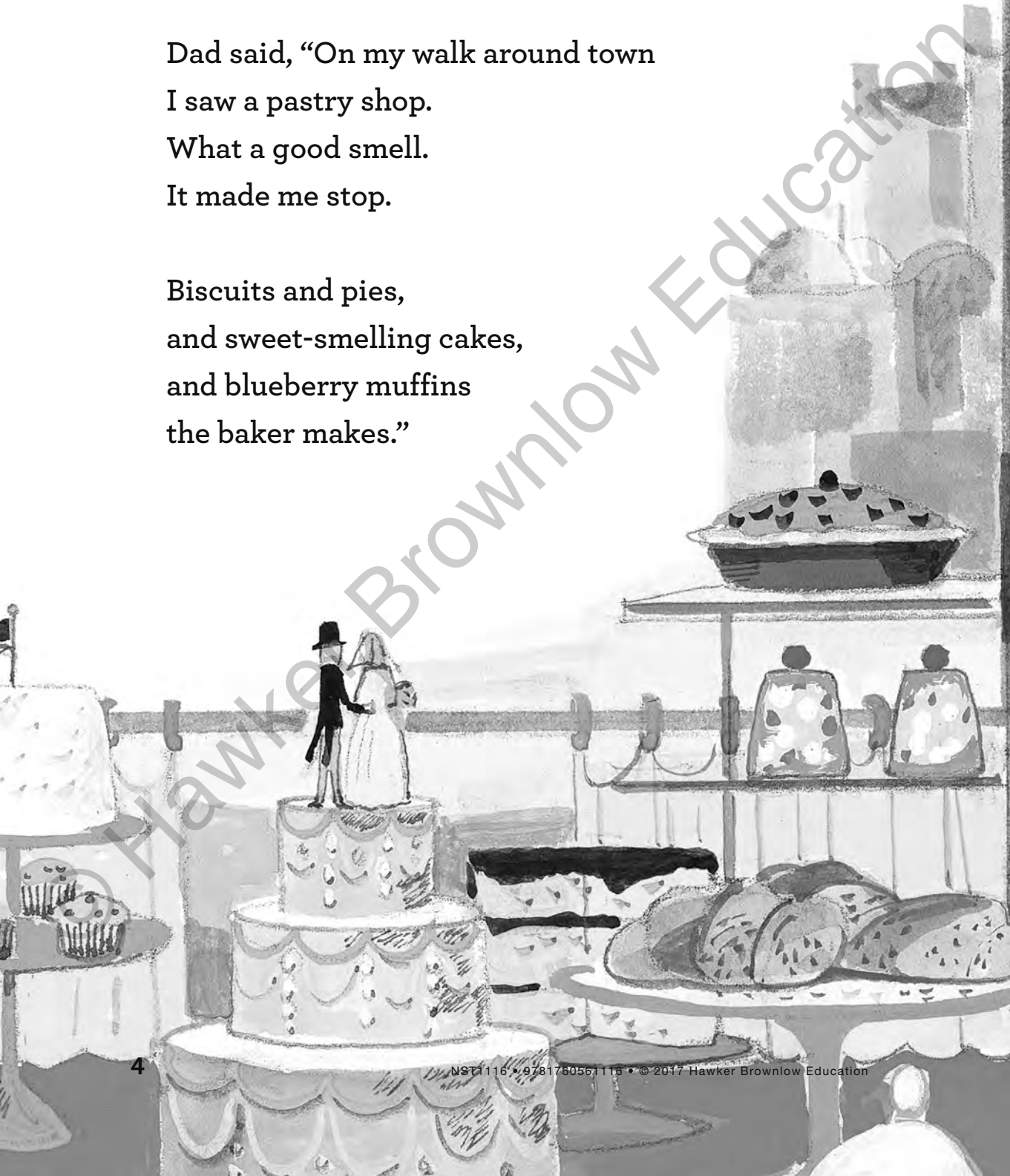
Dad said, “On my walk around town

I saw a pastry shop.

What a good smell.

It made me stop.

Biscuits and pies,  
and sweet-smelling cakes,  
and blueberry muffins  
the baker makes.”





“There were tyres,” Dad said,  
“for big cars and small.  
And more tyres,” he said with a laugh,  
“for trucks that are tall!”



# Fragrant as a Flower



## Parent/Teacher Handbook

### Introduction

In *Fragrant as a Flower*, a father tells his son about exploring smells in town when he was his son's age. His son associates his own experiences with the smells his dad remembers and realises that smells often help us recall experiences. The son also notes that some smells are connected to certain times in the past and can no longer be experienced in the same way. The walk his dad describes involves memories of visits to a fish market, pastry shop, timber yard, fruit stand and shoemaker, as well as of various activities along the street.

### Inquiry Processes

Like some other books in this series, this book emphasises an individual aspect of observation. *Fragrant as a Flower* describes how the sense of smell provides important information about our environment. The father describes how he used his sense of smell to make observations about things present around him before he saw them.

Although smells are emphasised in this book, observations are always multi-sensory. We use all of our senses to report experiences accurately.

### Content

We take in information about events through our senses. Although each sense follows its own pathway into our brain, our brain integrates the information to give us a holistic sense of an event. For our sense of smell, odours are tiny, invisible particles (molecules) in gaseous form that travel through the air to the sense organs of smell located between our eyes in our nasal cavity. Hairlike cells in our nose serve as smell detectors. When stimulated by odour molecules, these cells send signals to various brain regions, which produce the sensation of odours.

Odours are difficult to classify into definite types. Each substance has a distinct smell, and descriptions of smells are usually descriptions of the objects that produce the smell (e.g. "It smells like chocolate", or "It has a lemon smell").

There are many different kinds of receptors. Each is specific for a particular kind of odour. The range of human sensitivity to odours is wide for some people and narrow for others. Some people lack a sense of smell for certain odours. Others have a highly sensitive sense of smell. Smell also has a strong capacity to bring back memories.

## Science Activities

*Note:* before doing these activities, be sure to check with the school nurse about any potential allergy or asthma issues.

### Identifying Smells

Many items can be used to help readers experience different smells. Several items are suggested, but be careful if you try others. Some people are allergic to some smells (e.g. scented soaps), and some substances that smell are hazardous and shouldn't be used (e.g. rubbing alcohol). The following activities provide several ways to experience different smells.

1. Go on a "smelling walk" and write or draw pictures of the experiences in a story form. Any neighbourhood has wonderful sources of smells for the purpose of describing and identifying different smells. (Make sure the excursion location does not have any potential safety issues.)
2. Clean tomato sauce and mustard squeeze bottles are useful for identifying some smells. Put cotton balls prepared with different smells in different bottles. Use your imagination – perhaps dampen the cotton balls with extracts such as lemon, mint or vanilla. Or add some cinnamon, nutmeg or garlic to the bottles. You could also put slices of orange, lemon or banana in the bottles. Remember that when working with food, you should be aware of any foods that may cause allergic reactions, and remind students not to eat any of the food used.

Once you've put a smell in the bottle, you can squeeze the bottle to experience the smell. (Remind students to keep the pointed nozzle away from their eyes.) If you place the sources of the smell (or pictures of the sources) on a table, you can ask the reader to place the bottle next to the picture or object that it smells like. Let the reader describe how they could do this. Have the reader find pictures in this book where the different smells might be found.