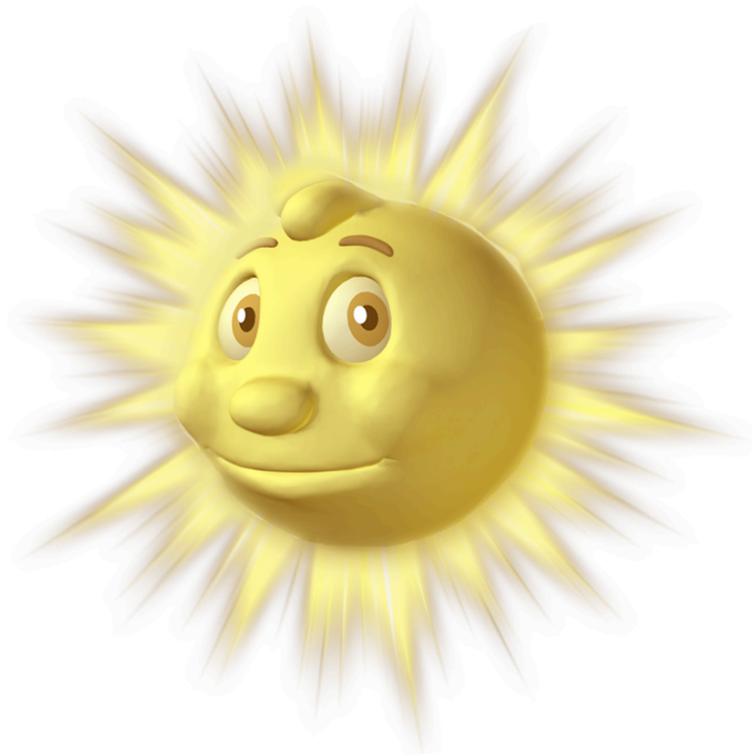


The Little Star That could



SCRIPT
(with new/revised content)

St. Louis Science Center
James S. Mc Donnell Star Theatre

THE LITTLE STAR THAT COULD

By Laura Kyro

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NARRATOR: Once upon a time in the universe, which is everything there is, a star was born. He began as a huge dark cloud of gas and dust. And one day, something happened which made the cloud start to shrink down upon itself.

As the cloud got smaller and smaller, it got hotter and hotter. Until at last the center of the cloud became hot enough that the little star was born and started to shine.

For the longest time he just shined and rested, for it was a hard job being born. And then one day the little star opened his eyes and looked down at himself. What he saw was a very average star. He didn't seem to be very large, or very small; and he was quite an unimpressive yellow color. For a star he wasn't especially hot or cool; an average temperature and in fact, he was quite an average and ordinary star in all respects. And while he was thinking about all this, he looked around, and he noticed that there were other stars in the sky all around him. They looked so wonderful and special that all the littler star could say was...

- LITTLE STAR: Oh, aren't you all beautiful! I could never be as special as you!

NARRATOR: And the stars seemed to answer back with their small twinklings "that's right". And feeling very sorry for himself—after all, everyone likes to think that they have something special—he set out to see the world, which for him was all of space. He hadn't traveled very far when he found himself coming close to what looked like a very old star. Not knowing if the star would want to be bothered or not, he started to speed up. But as he passed, the star spoke out...

- OLD STAR: HEY YOU! Young feller! Where you going in such an all-fired hurry?
- LITTLE STAR: Well sir, I'm not really going anywhere. I'm rather new and I just wanted to see what the universe is really like.
- OLD STAR: I see. Well, what's your name?

NARRATOR: The little star though about this very hard and after a long moment said...

- LITTLE STAR: I'm sorry. I don't have a name. Am I supposed to have a name?
- OLD STAR: 'Course you are. Don't 'cha have a name? What do your planets call you?
- LITTLE STAR: Planets? What are planets?
- OLD STAR: Don't you know nothin' boy? You must be mighty young. I can't see too well, and you don't look like much of a star but I thought every star knew that you've got to have planets. Don't mean to yell at you, boy, but the most rewarding' thing for any self-respecting star is to get himself some planets to warm and protect and keep in line.

And your planets give you your special name. The best thing for you to do is find yourself some planets.

- LITTLE STAR: But what ARE planets?
- OLD STAR: Oh, they're balls of rock or gas that move around you in circles called orbits. Planets come in all different sizes and colors. They can't give off light like us, but you can see them because your light bounces off of 'em. You warm them with you light and heat and keep them corralled with your gravity. And if you're REAL special, boy, you'll get a planet with life on it!
- LITTLE STAR: Life?
- OLD STAR: Yea. Beings that are alive and live on the surface of one of your planets. But you look like a pretty ordinary star. It takes a special star to have a planet with life. I just don't know if you're special enough to rate a planet with life. Odd color, yellow. Kinda ordinary. Not very bright either.
- LITTLE STAR: I know, sir I'm very ordinary. I'd be happy to just have ONE planet to call my own.
- OLD STAR: Well, you'd better start looking. Perhaps you can begin by askin' if any other stars have a planet or two to spare. Try asking that there red star way over yonder. You never know.
- LITTLE STAR: Thank you, sir. Sir?
- OLD STAR: Yea?
- LITTLE STAR: What do I call you? What's YOUR name?
- OLD STAR: Well, I'm afraid that I was never special enough to have me any planets. So I don't have me a special name. Just one of those things.
- LITTLE STAR: I'm very sorry sir. Perhaps there's still time for you to get some planets.
- OLD STAR: 'fraid not. I'm too old. Wouldn't have much to give to any planets. Thanks all the same. You'd best be going. Time's a wastin'
- LITTLE STAR: Thank you. I'll go right away.
- OLD STAR: Don't think much of you boy. You're too ordinary to ever be a special star, but I wish you luck. I think you'll get your planets.
- LITTLE STAR: Oh, I do hope so. Thank you again sir. Goodbye.
- OLD STAR: So long.

NARRATOR: And now the little star knew what he had to do. He had to find himself some planets and get a name. He didn't hope for too many...just a few. Maybe one rock planet and one gas planet. They'd give him a name. Then he'd be happy. And this was his first chance to

get a planet. He hurried toward the red star that the old star had pointed out. It took him a long while to travel to the star, and as he got closer the star yelled out...

- BIG DADDY: Hey you, back off!
- LITTLE STAR: I'm Sorry. Have I done something wrong? Are you angry with me?
- BIG DADDY: Naw. I'm not angry.
- LITTLE STAR: Well, you look red and angry.
- BIG DADDY: No, man, I'm cool. Red stars are cool.
- LITTLE STAR: Your color means that you're a cool star?
- BIG DADDY: Yea, man. The redder you are, the cooler you are, and I'm REAL cool, I mean for a star: But compared to a planet I'm red hot. Woo! You're a yellow star, which means you're hotter than I am, but you're still just average. Orange stars are cooler than you are, and red stars...they're the coolest.
- LITTLE STAR: I think I understand. You're special because you're red and cool. I'm yellow, so I have an average temperature and I'm very ordinary.
- BIG DADDY: Why you hangin' 'round here?
- LITTLE STAR: I just found out that I'm supposed to find some planets to take care of. Do you have one that I might have?
- BIG DADDY: You gotta be kiddin'. I have three, and I'm holdin' on to all of them. Anyways, I wouldn't give one to an ordinary star like you. Look somewhere else, kid.
- LITTLE STAR: Do you know where I might look?
- BIG DADDY: I've heard that there's a star nearby that's getting ready to blow. Blow up that is. If you're lucky maybe she'll give her planets to you. She won't need 'em anymore. Yea, I think I see her off that a way. You'd better hurry. I don't think she's gonna last too much longer. Now go away and don't bug me, man.
- LITTLE STAR: Thank you, sir. By the way, what do your planets call you?
- BIG DADDY: Hey, they call me Big Daddy.
- LITTLE STAR: Big Daddy?
- BIG DADDY: Ok. So you want to make something out of it?
- LITTLE STAR: Oh, no. I just wondered. Well, I had better be going if she's going to blow up soon. Goodbye.

NARRATOR: So the little star quickly left and hurried toward the star that Big Daddy had pointed to.

As he got closer he noticed that she looked a little upset, and a little sad. Not wanting to get too close in case she would blow up right then, he stopped rather far away and yelled in a loud voice

- LITTLE STAR: Excuse me, ma'am, but what's wrong? Why are you going to blow up?
- SUPERNOVA: (soft sigh) Because I'm dying, little star. Even though I'm not very old, I am very large, and I have used up all of my fuel so quickly that I am dying.
- LITTLE STAR: You're running out of fuel quickly because you're big? What fuel are you using?
- SUPERNOVA: The same fuel you have little star. We stars are made of hydrogen and other gases, and when we get hot we use the gas we are made of as fuel as fuel to shine.

(SFX suggesting a radiation star)*

That is how we can get old and run out of fuel. The larger you are, the faster you have to burn just to keep shining. (sound effect) I am a white star, and I am quite hot: Much hotter than you as a yellow star. And you are only a middle-sized star, so you will live much longer than I will. I'm a super giant star. And because I'm big, when I run out of fuel I am going to explode.

- LITTLE STAR: And I won't?
- SUPERNOVA: I don't think so. Usually a star of your size will just run out of gas gradually and burn out. Super giant stars like me, however, will end in an explosion called supernova.

(explosion sound effect)*

I will become very bright for a very short time and throw most of my left over gas out into space where one day it may become part of a new star. Even some of YOUR gas was once part of another star some time in the past. My name is Pearl. What's yours?

- LITTLE STAR: I don't have one yet. That's why I'm here. If you aren't going to need them, may I have one of your planets?
- SUPERNOVA: I'm sorry, little star, but I don't have any that you would want. I formed very quickly, and my planets are not worth having. But if I had a nice one to give you, I would.
- LITTLE STAR: That's all right. I'm just sorry that you are dying.
- SUPERNOVA: All stars will stop shining sooner or later, little star. Be happy that you are small enough to live a very long time.
- LITTLE STAR: Am I small enough to live the longest of any star?

- SUPERNOVA: No, you're small compared with me, but you are an average-sized star and are big enough to live an average lifetime.
- LITTLE STAR: Oh. Average...that's me.
- SUPERNOVA: But sometimes, my dear, being average is not so bad as you may think. Now you'd better go.
- LITTLE STAR: I will. But do you know where I might find some planets?
- SUPERNOVA: Well, I know that there is a blue-white star off in that direction. If you look carefully you can just see him. I don't know if he has any planets, but it probably couldn't hurt to go over and ask.
- LITTLE STAR: Perhaps he will have a planet to give me. Thank you, Pearl. Goodbye.
- SUPERNOVA: Goodbye...and good luck.

NARRATOR: And leaving Pearl, the little star started his journey to the blue-white star he saw burning off in the distance.

The blue star was quite bright, and the little star could feel heat coming from him from quite a long distance off. When it started to get too hot to go any closer to the star he stopped and spoke in a loud voice...

- LITTLE STAR: Sir. Mister blue-white star. Do you have a moment?
- BLUE: (angrily) No, I don't. What do you want? No, I don't care. Go away!
- LITTLE STAR: Just a moment of your time sir. Do you have a planet that I might have?
- BLUE: No! Get away from me.
- LITTLE STAR: Why are you so angry?
- BLUE: I'm angry, I'm angry because I'm hot. Blue-white stars are always hot. We're the hottest stars there are. We're even hotter than white stars. We're much hotter than little yellow stars like you. Now go away.
- LITTLE STAR: But do you have a planet for me?
- BLUE: No. I don't have any planets. And even if I did I wouldn't give one of them to you! Go away!
- LITTLE STAR: I'm sorry to have bothered you sir. I'll leave now.
- BLUE: And not a moment too soon. Get lost!

NARRATOR: The poor little star hurried off. He felt very sorry that he had disturbed the blue-white star, but he was also sad. He'd visited four stars and still had no planets, and didn't know where else to turn. But just then a thought came to him...

- LITTLE STAR: I've been visiting only SINGLE stars. Stars that live alone. Perhaps if I find two or more stars together they might have a planet to spare.

NARRATOR: And he looked around the sky until he saw two stars very close together and he hurried toward them.

As he got closer, he saw that they didn't look like twin stars. They were close together, but they were different colors. One was a yellow star, but she looked more like a deep gold rather than dull yellow like him. The other was a deep brilliant blue. He now knew that blue stars were hot and might get angry, but they both looked friendly, so he got very close and said...

- LITTLE STAR: Hello there.
- DOUBLE STAR: (both female, in unison) Hello.
- LITTLE STAR: You are both very pretty.
- DOUBLE STAR: Thank you. Thank you. We know. My sister Goldie/Sapphire is very beautiful. A very pretty shade of blue/gold, which makes us special. You're quite ordinary.
- LITTLE STAR: Yes, I know. But you should have about the same temperature as I do, Goldie. We're both yellow stars.
- DOUBLE STAR: Yes, that's true, but I'm a little cooler than you are. My sister, however, is quite hot.
- LITTLE STAR: I know. I have already met a hot blue-white star. But isn't it unusual for two stars like you to be so close together? All the stars I have visited until you two have been alone.
- DOUBLE STAR: Not at all. Not at all. More than half of the stars in the sky are in groups of two or more stars. We are called a double star. Double and single stars are quite ordinary, but our beautiful colors make US special.
- LITTLE STAR: (sigh) Ordinary again. I am an average single star with an ordinary color, and I have no planets. Would you two have one that I might have?
- DOUBLE STAR: Sorry. Sorry. Our few planets are shared by both of us and so we just don't have any to spare.
- LITTLE STAR: I just thought it wouldn't hurt to ask. Perhaps I am not meant to have planets or a name. (sigh) I'll be going now. Goodbye, Goldie. Goodbye, Sapphire.
- DOUBLE STAR: Goodbye. Goodbye.

NARRATOR: And the little star was more unhappy than ever. He had visited two more stars and he still didn't have any planets. But he realized that he did know a lot more about stars than he used to. Stars can be alone, or have one or more companion stars. Stars come in different colors, and different temperatures. Big Daddy had said that red stars were the coolest, but were

still much hotter than planets. The blue-white white star had said that he was the hottest. The Little Star knew that he, himself, had a very average temperature, and that he was yellow. He remembered that orange stars were cooler than he was, but white stars were hotter. The colors of these stars seemed to make a little rainbow, and the temperatures of the stars went upward from red, through orange, yellow and white, all the way up to blue-white.

But knowing about stars wasn't helping the Little Star to get any planets, and he was thinking of stopping his search for planets of his own, when just off at the farthest reaches of the sky he could see a shimmering collection of a lot of stars in the shape of a huge globe.

- LITTLE STAR: Wow!

NARRATOR: ...He thought. With that many stars so close together, surely at least one of them had an extra planet that he might have. And with all the speed he could muster he started off toward the group of stars.

He was on his way to them when he found that there seemed to be something holding him back, as though he had come to the edge of something which he could not cross. And he just couldn't get as close to them as he wanted. He wanted very much to go to them, but instead called out in a very loud voice...

- LITTLE STAR: Hello! Who are you? Why can't I come out to visit you?
- GLOBULAR CLUSTER: I am a globular cluster. My name comes from the shape of my many stars, which together look like a large globe. You cannot come out here, little star, away from your brothers and sisters. Stars like yourself do not live out here.
- LITTLE STAR: I just wanted to ask you if you had a planet that I might have. There are so many stars in you that you must have a planet to spare.
- GLOBULAR CLUSTER: I 'm sorry little star, but I can't get close enough to you to send you any of my planets. Anyway, all of my planets are very old. The gas and dust that was here when my stars and planets were first formed was used up long ago, and there is very little left to make new stars or planets.
- LITTLE STAR: Are you saying that planets are made of the same things stars are? They all start as gas and dust?
- MILKY WAY: Yes, little star.
- LITTLE STAR: Gasp! Who are you? Where are you?
- MILKY WAY: I am all around you, and you are a part of me. In fact, each star that you can see – and hundreds of thousand of others, which you cannot see – are all part of me. I am a galaxy. I am called the Milky Way.
- LITTLE STAR: I am very pleased to meet you. I have never seen anything as large as you.
- MILKY WAY: We galaxies are the biggest collections of stars that there are, and I have many parts. I will show you a picture of myself as the Globular Cluster sees me.

My center is a glowing core of many old stars. I have younger stars in my arms, as well as clouds of gas and dust where new stars like you are always being born. In fact, you are in one of my arms.

- LITTLE STAR: Why do you have arms?
- MILKY WAY: Galaxies come in many different shapes. I am called a spiral galaxy as I have arms of stars in a pinwheel shape. But I am only one of many galaxies in the universe. You can see some of the other galaxies all around me. Not all of them are spirals, but most of them have gas and dust where new stars are being born in them, too.
- LITTLE STAR: And the cluster said that a star and its planets are made from the same material?
- MILKY WAY: Usually, a star's planets are made of exactly the same cloud that the star was born out of. They form together.
- LITTLE STAR: But all of the stars I have talked to said that I must FIND planets, as I have none.
- MILKY WAY: The stars you were speaking to probably had no planets at all, or only small, useless ones. It takes a very special star to have and keep planets. And only the most special might have a planet with life on it.
- LITTLE STAR: That's what I've been told. I know that I'm a very ordinary star. I'm not very big, and the heat I give off is only average. I don't have any planets now, and it seems that I will never get any. I'll never have a name of my own.
- MILKY WAY: Who has been telling you that you have no planets?
- LITTLE STAR: What do you mean?
- MILKY WAY: Perhaps you did not know what to look for. Planets are very small things. If you look around yourself, you will find that you have eight planets and many smaller bodies called dwarf planets. And if I'm not mistaken, one of your planets seems to have life on it. I said that it takes a special star to have planets with life on it. And by being very average, YOU are a special star. A star that is too big, or too small, too hot, or too cool, or too old or too young would not be good for supporting planets with life.

NARRATOR: The little star could not believe what he had just heard. He was a special star? He had planets? And one with life on it? He became very still and carefully looked around himself. And by squinting he could just barely see a number of small objects whizzing around him.

- LITTLE STAR: My!

NARRATOR: He thought.

- LITTLE STAR: They're so small. No wonder I didn't notice them before.

- MILKY WAY: Little star. Why don't you have them introduce themselves?
- LITTLE STAR: Can they do that? Hello. Hello down there. Planets? Stop for a minute and tell me your names.
- SOLAR SYSTEM: (together) We can't stop. It would not be right if we were to stop. You would pull us into yourself, and we would all burn up.
- LITTLE STAR: What do you mean? I would never do that.

NARRATOR: The little star seemed quite upset about this, and was very puzzled. It was then that the closest planet to him spoke.

- MERCURY: Perhaps I can help explain. My name is Mercury. You can't help it, you know, but it's your gravity that keeps us movin' around you. You're always pullin' on us which keeps us from heading off into space. But if each of us weren't moving, and trying in our own small way to travel away from you your gravity would eventually pull us all in. Since I am closest to you, I have to move the fastest just to stay as far away from you as I am.
- LITTLE STAR: I see. Aren't you very hot, being so close to me?
- MERCURY: Yes. Very Hot. But I don't have any air or atmosphere around me to trap heat, so the side of me that faces away from you is very cold. And my surface is covered with cracks and holes called craters, and they don't mind the heat.
- VENUS: I'm very hot too.
- LITTLE STAR: Who said that? Oh, it's you, the bright one. You're much larger than Mercury, and I don't see any craters on you. What's your name?
- VENUS: I'm Venus, your second planet. Even though I'm farther from you, I'm hotter than Mercury. That's because I have an atmosphere which covers my surface with clouds. I trap a lot of the heat you send me underneath my blanket of clouds, and it gets very hot down here.
- LITTLE STAR: And I can't see your surface because you are covered with clouds?
- VENUS: That's right. But if you could see my surface you would see that I have mountains and volcanoes, and a lot of rocks, but no water. I'm too hot to have it.
- PLUTO: Too bad you can't send some of that heat out here! I'm freezing!
- LITTLE STAR: Who said that? Oh you way out there, where it's so dark! You're so far away from me that it's no wonder you're so cold. What do I call you?
- PLUTO: M-my name's Pluto. I'm one of your dwarf planets. I come from a special area around you, called the Kuiper Belt where there are many rocky, icy objects like me. Hardly any of your heat reaches out here, and I only get a little light f-from you, To me you seem to be a very dim, small star, but you still have enough pull to keep me moving

around you although I'm, very slow. And I do have something that Mercury and Venus don't have.

- LITTLE STAR: What's that?
- PLUTO: I have moons. Charon is the largest. The others are smaller, but they're all I have.
- LITTLE STAR: What's a moon?
- SATURN: A moon is a rocky or icy ball that moves around a planet; just like we planets move around you.
- LITTLE STAR: Who are you? You seem to be rather large for a planet. And what are those rings around you?
- SATURN: I'm Saturn, your second largest planet. I'm one of your gas giant planets. I'm made mostly of gas, which covers me with bands of yellowish clouds, and I don't really have a solid surface. I don't mean to brag, but I know a lot about moons. I have dozens of them (56).
- LITTLE STAR: That's quite a lot.
- SATURN: And my rings are made mostly of ice particles and rocks covered with ice. Aren't they beautiful? The ice reflects a lot of your light, and makes my rings look very bright even though I am rather far away from you.
- URANUS & NEPTUNE: Hey, you're not the only planet with rings!
- LITTLE STAR: Who said that? Oh, you two. You look like twins. Now, what did you say?
- URANUS: We just wanted to remind Saturn there that she isn't the only one with Rings. I'm Uranus, and I have rings, even if they aren't as bright as Saturn's. I *also* have a lot of moons.
- NEPTUNE: I have rings and moons too. I'm Neptune. Because I am almost the same size and color as Uranus, you might think of us as twins, but we're not EXACTLY alike. Uranus and I are both gas giant planets, but our clouds look green and blue rather than yellow like Saturn's clouds.
- URANUS: And we are also smaller than Saturn and Jupiter.
- LITTLE STAR: Jupiter?
- JUPITER: Yes. I'm Jupiter, your largest planet. I'm made mostly of hydrogen and helium gas, like you are, but I never was big enough, or got hot enough, to start shining like a star. I have more moons than Uranus and Neptune combined. And some of my moons are VERY special. One of them even has erupting volcanoes on it. I have a small ring, but my best features are my clouds. My clouds are quite colorful and move in swirling patterns. I also have spots. There are many white ones, and one very special red

one. Those spots are great storms larger than most of your other planets. I dare say that I am the most interesting and colorful planet you have.

- MARS: Wait a minute! I may be small, but I'm more colorful than you are!
- LITTLE STAR: Hello? I can barely see you, but you're so RED! What's your name?
- MARS: Mars is the name.
- LITTLE STAR: Hello, Mars. And what is special about you?
- MARS: Everything! I'm called the red planet because I have reddish-brown rust in my soil. I have volcanoes and canyons on my surface, and polar ice caps, and old river beds, and rocks, and boulders, and an orange-pink sky, and two moons I captured from the Asteroid Belt and...
- LITTLE STAR: Hold it! Hold it! You captured your moons from what?
- CERES: The Asteroid Belt. It has thousands of rocks called Asteroids and *they* all orbit around you too.
- LITTLE STAR: Oh, hello there. Now, who are *you*?
- CERES: I'm Ceres, I am another one of your dwarf planets but my home is the Asteroid Belt between Mars and Jupiter. I'm not quite the same as the Asteroids. I'm bigger than they are and I'm the most important thing here. Besides us, there are lots of *other* little objects that orbit around you. Some are ice-balls in the deep freeze way out past Pluto and another group hangs out near Neptune. Comets follow very long narrow paths and form beautiful, sweeping tails whenever they pass near you.
- LITTLE STAR: You sure seem to know a lot.
- CERES: You got it, Kiddo!
- LITTLE STAR: But I haven't heard from my most special planet. Which one of you has life?
- EARTH: Oh, that would be me.
- LITTLE STAR: And what is your name?
- EARTH: I am called Earth. That's another name for Mother. And I am the mother of the beings who are living on me, called humans. Of course, we simply couldn't get along without you. Your light and heat, which I hold to with my covering of air, makes life on Earth possible. Because of you the humans enjoy weather, and four different seasons, depending on which part of me is pointing toward you through the year. Without you there would be no day and night. I have one moon, which is quite nice and covered with bumpy craters and flat dark areas. But I do have something that no other planet has.
- LITTLE STAR: And what would that be?

- EARTH: I am the only one of your planets with liquid water on my surface. Without my water and your light and heat, there would be no life on earth.
- MILKY WAY: And you must take very good care of the humans and your planets, little star. I have chosen a very special place for you to stay in one of my arms. You may stay there as long as you wish.
- LITTLE STAR: Just a moment, please; I want to take one more look at my planets, and see what order they are all in. Would you all please tell me your names again, and in your order going away from me?

MERCURY:

VENUS:

EARTH:

MARS:

JUPITER:

SATURN:

URANUS:

NEPTUNE:

CERES AND PLUTO: And don't forget about us!

CERES: Ceres!

PLUTO: and Pluto!

- LITTLE STAR: Thank you very much. And thank you, Milky Way. Without you I might never have known I have planets. Are you all ready to come along?
- SOLAR SYSTEM: Sure we are. But don't you want to know what your name is?
- LITTLE STAR: Oh! I forgot. I was so happy to have planets that I forgot that I even wanted a name. Please, tell me what it is.
- SOLAR SYSTEM: We have named you the Sun. You are also called Sol, and we are your "solar system" which means your family.
- LITTLE STAR: Oh, thank you. Sol is a wonderful name.

NARRATOR: And so the little star was now happy. He had eight planets and many other smaller bodies. And one of them even had life. And he had a name. Sol. And he and his planets made their home in a very nice neighborhood, in one of the spiral arms of the Milky Way galaxy. They have been there ever since.