

## HurkleQuest on the Number Line Game 01

The Hurkle Hiders [Bob & George] • MathBackpacks@aol.com

This is the story of **HurkleQuest on the Number Line Game 01**, played by email from 2005-02-24 through 2005-03-15. We invited fourth grade teachers and their students to play by sending email to the Oregon Council of Teachers of Mathematics (OCTM) listserv.



### Invitation to Play HurkleQuest on the Number Line

**Subject:** Play HurkleQuest on the Number Line by Email

**Date:** 2005-02-18

We invite up to six teams of fourth grade students, from six different schools, to play ***HurkleQuest on the Number Line*** by email.

If you want to play, send an email request to **The Hurkle Hiders** at **MathBackpacks@aol.com**.

Three decades or so ago, we invented a simple game called **Hurkle** and published the first primitive version of Hurkle as a computer game in *People's Computer Company*, April 1973. You can find Hurkle in its original version in the book *Family Math* and on the Internet. Do a Google search using **hurkle** as the search key. Also try the search key: **hurkle game**.

We have invented new versions of Hurkle that use colors of the rainbow as "fuzzy feedback" clues. We have played HurkleQuest in classrooms, by USPS mail, and by email. We have played on the number line, in Cartesian coordinates, on a map of the USA, on a globe of the Earth, and in other spaces.

*The Hurkle is a happy beast that lives in another galaxy on a planet named Lirht that has three moons. Hurkles are favorite pets of the Gwik, the most intelligent denizens of Lirht.*

Paraphrased from "The Hurkle Is a Happy Beast," a story by Theodore Sturgeon.

**HurkleQuest** is a search-and-find game with "fuzzy feedback clues." The clues are colors of the rainbow.

- Hurkle is hiding at a point  $x$  on the number line.
- $x$  is a whole number from 0 to 9999 ( $0 \leq x \leq 9999$ ). There are 10,000 possible values of  $x$ .

Each turn you send three guesses by email to MathBackpacks@aol.com. If your first three guesses are 1000, 2000, and 3000, send them as shown below:

- Guess #1: 1000
- Guess #2: 2000
- Guess #3: 3000

We will send a clue for each of your guesses. Here are the possible clues:

- RED means your guess is VERY HOT, very close to Hurkle's hiding place.
- ORANGE means your guess is HOT, close to Hurkle's hiding place, but not as close as RED.
- YELLOW means your guess is WARM, not as close as RED or ORANGE, but closer than GREEN, BLUE, or VIOLET.
- GREEN means your guess is COOL, not as close as YELLOW, ORANGE, or RED. Good news: closer than BLUE or VIOLET.
- BLUE means your guess is COLD, far from Hurkle's hiding place. That's OK. Expect to get a bunch of BLUEs as you begin your quest. Hurkle is hiding at 1 point in a set of 10,000 points!
- VIOLET means that your guess is VERY COLD, very far away from Hurkle's hiding place. Despair not. At the beginning of the game, this is good information. It tells you what regions to avoid!

We will also send you the email addresses of the other players and encourage you to share information with them. You may wish to form an email alliance with another team in order to find Hurkle more quickly.

Hurkle is hiding, wanting to be found!

The Hurkle Hiders [Bob & George] MathBackpacks@aol.com

### Three Adventurous Teachers Want to Play

Three adventurous teachers responded. There was great joy in Hurkle Land!

**Subject:** Hurklemania

**Date:** 2005-02-18

**From:** LKlaus@fgsd.k12.or.us

This sounds like a lot of fun. Please sign my 4th grade class up to play.  
Lori Klaus, Cornelius Elementary School, Cornelius, OR. How do we get started?

**Subject:** My 4th grade class wants to play Hurkle!

**Date:** 2005-02-18

**From:** hoisingr@wlvv.k12.or.us

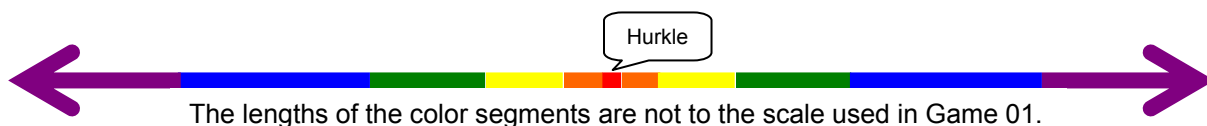
Rob Hoisington, Boeckman Creek Primary, Wilsonville, Oregon.

**Subject:** Hurkle

**Date:** 2005-02-18

**From:** Kristin\_Lavy@lincoln.k12.or.us

Hi Hurkle Hiders! I would love to be one of the 4th grade teams. My school is Sam Case Elementary, Newport, OR. My students will love this. Can't wait to tell them about this on Tuesday.  
Kristin Lavy, 4th Grade Teacher, Member of OCTM



## HurkleQuest on the Number Line Game 01 Begins

**Subject:** HurkleQuest Number Line Game 01 begins

**Date:** 2005-03-24

Ahoy Hurkle Questers,

Welcome. **HurkleQuest on the Number Line Game 01** begins with three teams of 4th grade students and their teachers/coaches.

Send your three guesses to  
the Hurkle Hiders at [MathBackpacks@aol.com](mailto:MathBackpacks@aol.com).  
Please read the rules below.

*The Hurkle is a happy beast that lives in another galaxy on a planet named Lirht that has three moons. Hurkles are favorite pets of the Gwik, the most intelligent denizens of Lirht.*

**HurkleQuest** is a search-and-find game with "fuzzy feedback clues." The clues are colors of the rainbow.

- Hurkle is hiding at a point  $x$  on the number line.
- $x$  is a whole number from 0 to 9999 ( $0 \leq x \leq 9999$ ). There are 10,000 possible values of  $x$ .

Each turn you send three guesses by email to [MathBackpacks@aol.com](mailto:MathBackpacks@aol.com). If your three guesses are 1000, 2000, and 3000, send them as shown below:

- Guess #1: 1000
- Guess #2: 2000
- Guess #3: 3000

We will send to you a clue for each of your guesses. Here are the possible clues:

- RED means your guess is VERY HOT, very close to Hurkle's hiding place.
- ORANGE means your guess is HOT, close to Hurkle's hiding place, but not as close as RED.
- YELLOW means your guess is WARM, not as close as RED or ORANGE, but closer than GREEN, BLUE, or VIOLET.
- GREEN means your guess is COOL, not as close as YELLOW, ORANGE, or RED. Good news: closer than BLUE or VIOLET.
- BLUE means your guess is COLD, far from Hurkle's hiding place. That's OK. Expect to get a bunch of BLUEs as you begin your quest. Hurkle is at 1 point in a set of 10,000 points!
- VIOLET means that your guess is VERY COLD, very far from Hurkle's hiding place. Despair not, this is good information. It tells you what domains of the number line to avoid!

The Hurkle Questers are:

- Lori Klaus ([LKlaus@fqsd.k12.or.us](mailto:LKlaus@fqsd.k12.or.us))
- Kristin Lavy ([Kristin\\_Lavy@lincoln.k12.or.us](mailto:Kristin_Lavy@lincoln.k12.or.us))
- Rob Hoisington ([hoisingr@wlwv.k12.or.us](mailto:hoisingr@wlwv.k12.or.us))

We encourage you to share or trade information with other players. You may wish to form an email alliance with another team in order to find Hurkle more quickly.

Hurkle is hiding, wanting to be found!

The Hurkle Hiders [Bob & George] [MathBackpacks@aol.com](mailto:MathBackpacks@aol.com)

## The Fourth Grade Hurkle Squad

**Turn 01, 2005-02-25. Lori Klaus and class send their first set of guesses:**

Hello, Hurkle Hiders, We have decided on our first three guesses:

- #1 2,000
- #2 5,000
- #3 8,000

We eagerly await the answer!  
Lori Klaus and class

**Turn 01, 2005-02-27. The Hurkle Hiders reply:**

Ahoy HurkleQuesters Lori Klaus and Class,

Thanks HurkleQuesters. You are the first team to send your guesses for HurkleQuest on the Number Line Game 01. Here are your guesses and clues.

- Guess #1: 2,000 Clue: BLUE
- Guess #2: 5,000 Clue: VIOLET
- Guess #3: 8,000 Clue: VIOLET

A most excellent start! You already have one BLUE. You were clever to spread your first three guesses far apart on the number line from 0 to 9999. We like your guesses.

We suggest that you put a big number line on a wall of your classroom, number it from left to right 0, 1000, 2000, 3000, and so on up to 9999 (or 10000 if you prefer).

- Put a blue mark at 2000.
- Put a violet mark at 5000.
- Put a violet mark at 8000.

Would you like to give your team a cool name?

May dragons of good fortune dance on your number line.

The Hurkle Hiders [Bob & George]

**Turn 02, 2005-02-28. Lori Klaus's class is now the Fourth Grade Hurkle Squad.**

We have decided to be called FGHS for Fourth Grade Hurkle Squad (coincidentally also stands for Forest Grove High School, the high school these kids will go to). Here are our next three guesses:

- #4 3,000
- #5 1,200
- #6 800

We are eagerly awaiting our codes.

**Turn 02, 2005-03-02. The Hurkle Hiders send:**

Ahoy FGHS,

Hey, this team is fast! Already another set of guesses. Here are your guesses and clues.

- Guess #4: 3,000 Clue: BLUE
- Guess #5: 1,200 Clue: VIOLET
- Guess #6: 800 Clue: VIOLET

Another BLUE. Your guess #1 (2,000) and guess #4 (3,000) are both BLUE. From your patches of blue, off yonder in the distance you can see a faint shimmering of green.

Please send your next 3 guesses, FGHS. Ganbatte! (Japanese for "Do your best!")

**Turn 03, 2005-03-02. Blink! The Fourth Grade Hurkle Squad sends another set of guesses.**

I can't hold these guys back. So here is our third turn of guesses:

- #7 2,500
- #8 4,200
- #9 3,200

One student wanted to choose 9,999 because he thought you were tricking us and that was where **HE** would hide, but the others voted him down, explaining that it can't be there because of the clues.

**Turn 03, 2005-03-03. The Hurkle Hiders reply:**

Ahoy FGHS,

Zounds! You are the fastest team we have ever played with. Keep up the fast good work. Here are your Turn 3 guesses and clues.

- Guess #7: 2,500 Clue: BLUE
- Guess #8: 4,200 Clue: VIOLET
- Guess #9: 3,500 Clue: VIOLET

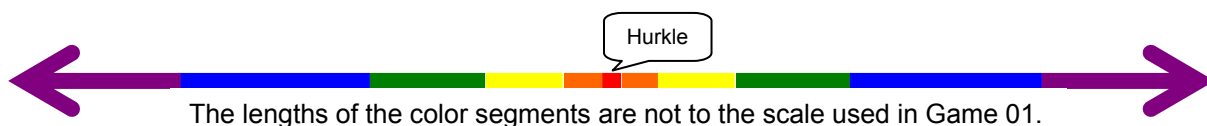
You now have

BLUE guesses at 2000, 2500, and 3000. Explore this part of Hurkle space!

VIOLET guesses at 800, 1200, 3500, 4200, 5000, and 8000. Wander not in this barren domain.

The BLUE guesses are relatively close together. The VIOLET guesses are spread out to the left and right of the BLUE space. If you draw a number line and put a blue or violet mark at each guess, you will see that your blue guesses are all in an **interval** of 1001 points (2000 to 3000, inclusive), approximately one-tenth (1/10) or 10 percent (10%) of the 10,000 points where Hurkle can hide! Good work, FGHS!

Explore that **BLUE** interval on the number line. Go for the **GREEN!** Do your best!



**Turn 04, 2005-03-05. The Fourth Grade Hurkle Squad rises to the challenge:**

Yes, we certainly are quick! Here are our next three guesses:

- #10: 2,345
- #11: 2,700
- #12: 2,850

The class worked in teams to decide on our strategy. Each team presented their strategy and then we voted. The plan was to cluster the next guesses near 2,500...which they then kind of did.

**Turn 04, 2005-03-05. The Hurkle Hiders applaud FGHS's strategy:**

Bravo, FGHS! Your strategy was A-OK! Teamwork and democracy worked well together.

Here are your guesses and clues:

- Guess #10: 2,345 Clue: YELLOW
- Guess #11: 2,700 Clue: BLUE
- Guess #12: 2,850 Clue: BLUE

You made a hyperspace jump into a YELLOW interval of Hurkle space. You are zooming in on Hurkle. Hurkle and the Hurkle Hiders eagerly await your next three guesses.

**Turn 05, 2005-03-07. FGHS zooms back with:**

And away we go! Here are the next three... You can run but you can't hide, Hurkle!

- #13 2,300
- #14 2,375
- #15 2,400

We sense we are getting close and that Hurkle is quaking in his boots.

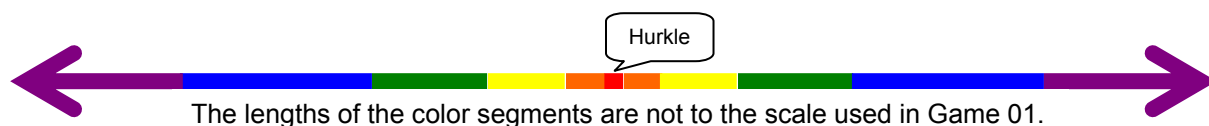
**Turn 05, 2005-03-07. The Hurkle Hiders say:**

Run but not hide? Quaking in his/her/its boots? Hurkle loves kids and gleefully anticipates being found. Hurkle says, "Let's meet and play!" Your guesses and clues:

- Guess #13: 2,300 Clue: GREEN
- Guess #14: 2,375 Clue: YELLOW
- Guess #15: 2,400 Clue: GREEN

You have two guesses in the YELLOW interval of Hurkle space. Good work, FGHS! Explore YELLOW space! Zoom in and discover ORANGE space, RED space, and – Hurkle!

May dragons of the visible light spectrum guide you in your quest.



**Turn 06, 2005-03-08. FGHS is getting close!**

We're so happy Hurkle is a fun alien. We can't wait to find it/him/her! Our next guesses are:

#16 2,365  
#17 2,360  
#18 2,355

Can you see our system? We have already begun imagining what a Hurkle looks like.

**Turn 06, 2005-03-09. The Hurkle Hiders and Hurkle are preparing the Welcome Wagon.**

Very colorful guesses, FGHS! A beautiful assortment of colors in three different intervals of Hurkle space. Your guesses and clues:

Guess #16: 2,365 Clue: YELLOW  
Guess #17: 2,360 Clue: ORANGE  
Guess #18: 2,355 Clue: RED

Playful Hurkle is quivering in gleeful anticipation of being found. Keep imagining!

**Turn 07, 2005-03-09. FGHS guesses Hurkle's hiding place!**

All the all the outs in free! (or some say "ollie ollie oxen free!") Hurkle, we're close; get ready to play!

#19 2356  
#20 2354  
#21 2357

**Turn 07, 2005-03-10. The Hurkle Hiders and Hurkle welcome the Fourth Grade Hurkle Squad**

Welcome to Hurkle's hiding place. You have made Hurkle very happy! Here are your guesses and clues:

Guess #19: 2,356 Clue: RED  
Guess #20: 2,354 Clue: ORANGE  
**Guess #21: 2,357 Clue: HURKLE!!! Let's play!**

Congratulations. You found Hurkle! You played **HurkleQuest on the Number Line** exceedingly well.

**About Hurkle**

"The hurkle are highly regarded by the gwik as pets, in spite of the fact that a hurkle is so affectionate that it can have no loyalty."

"Into the laboratory wandered a hurkle kitten. It was very happy to find itself there; but then, the hurkle is a happy beast. It prowled about fearlessly -- it could become invisible if frightened -- and it glowed at the legs of the tables and at the glittering, racked walls. It moved sinuously, humping its back and arching along the floor. Its front and rear legs were as stiff and straight as the legs of a chair; the middle pair had two sets of knees, one bending forward, one back. It was engineered as ingeniously as a scorpion, and it was exceedingly blue."

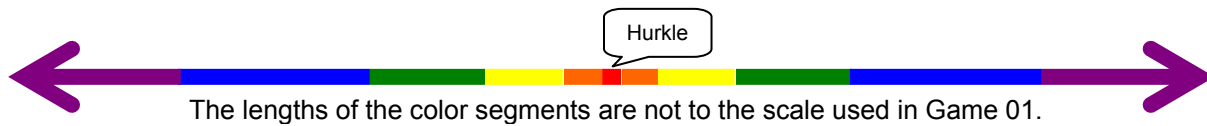
The quotations are from "The Hurkle is a Happy Beast" by Theodore Sturgeon, who lived in Eugene, Oregon.

STURGEON, Theodore H. - personal data (<http://www.gwillick.com/Spacelight/sturgeon.html>)

You have found Hurkle. What happens next? Aha! **You** can write that story.

- Can Hurkle call home? If yes, the gwik can send a spacecraft to take Hurkle home.
- The gwik might send email that tells you how to send Hurkle home.
- You might invent a spaceship or hyperspace transporter that sends Hurkle home.
- Or -- what do you say?

Thanks for playing **HurkleQuest on the Number Line**.



## Lavy's Learner's

**Turn 01, 2005-03-03. Kristin Lavy writes:**

Here are the three guesses from Sam Case. We look forward to hearing back from you.

Guess #1- 8,632  
 Guess #2- 1,136  
 Guess #3- 5,000

Kristin Lavy, 4th grade teacher, LCSD GLAD key trainer, National Board Certified Teacher, Sam Case Elementary/Newport Early Childhood Center, Lincoln County School District

**Turn 01, 2005-03-03. The Hurkle Hiders reply.**

Ahoy Kristin Lavy and your 4th Grade HurkleQuesters,

Thanks for your Turn 01 guesses. **Would your team like to give itself a cool name?**

Here are your guesses and clues.

Guess #1: 8,632 Clue: VIOLET  
 Guess #2: 1,136 Clue: VIOLET  
 Guess #3: 5,000 Clue: VIOLET

Three VIOLETS. That is A-OK. Now you know three places in Hurkle space to avoid! You can expect mostly VIOLETS and BLUES in your first few guesses -- unless you are very lucky.

We suggest that you put a **big number line** on a wall of your classroom, number it from left to right 0, 1000, 2000, 3000, and so on up to 9999 (or 10000 if you prefer).

Put a violet mark at 1,136.  
 Put a violet mark at 5,000.  
 Put a violet mark at 8,632.

Use the number line to scope out your next guesses. Hurkle eagerly awaits your next three guesses.

**Turn 02, 2005-03-07. Lavy's team becomes Lavy's Learners.**

Ahoy Hurkle Hiders! Lavy's Learners (our team name) are submitting the following three guesses:

6500, 9999, 2640.

We're hoping these are warmer than violet. We eagerly await your response.  
Kristin, Fearless Leader of Lavy's Learners

**Turn 02, 2005-03-07. The Hurkle Hiders Reply to Lavy's Learners**

Ahoy Lavy's Learners,

Great name! As Snoopy might say, "To learn is to live; to live is to learn." Your guesses and clues:

Guess #4: 6500 Clue: VIOLET  
Guess #5: 9999 Clue: VIOLET  
Guess #6: 2640 Clue: BLUE

Hurkle says, "Let that BLUE clue guide you in your quest." Your guess 2640 is a point in a **BLUE interval** of Hurkle space. We eagerly await your next guesses.

**Turn 03, 2005-03-08. Lavy's Learners have learned well!**

Our next round of guesses are

2222  
2364  
1995

We eagerly await your feedback. We're goin' on a hurkle hunt...

**Turn 03, 2005-03-08. The Hurkle Hiders applaud the good work of Lavy's Learners.**

Ahoy Lavy's Learners,

Most excellent guesses! Two of your guesses are in BLUE intervals of Hurkle Space. One guess is a long leap into a YELLOW interval of Hurkle's Number Line Land. Here are your guesses and clues:

Guess #7: 2222 Clue: BLUE  
Guess #8: 2364 Clue: YELLOW  
Guess #9: 1995 Clue: BLUE

Playful Hurkle says, "Soon there will be people here to play with me!"

**Turn 04, 2005-03-09. Lavy's Learners move closer to Hurkle's hiding place.**

Greetings Hurkle Hiders! Lavy's Learners were, oh, so excited about a yellow. Ye hah! Here are our next three guesses (we hope we're as warm or warmer):

2369  
2350  
2339

Looking forward to your response. Kristin and Lavy's Learners.

**Turn 04, 2005-03-10. Hurkle says, "Sharing is good."**

Well done, Lavy's Learners. Two guesses are in YELLOW intervals of Hurkle Space and one is GREEN.

Here are your guesses and clues:

Guess #10: 2369 Clue: YELLOW

Guess #11: 2350 Clue: YELLOW

Guess #12: 2399 Clue: GREEN

We hear that you and Hoisington's Hurklefinders are cooperating. Hurkle says, "Sharing is good."

You are learning well, Lavy's Learners. Keep guessing and cooperating. You will soon move into the ORANGE and RED intervals of Hurkle Space.

**Turn 05, 2005-03-11. Lavy's Learners arrive at Hurkle's hiding place**

Hoisington's guesses REALLY helped us out (we hope). Here's what we are choosing today:

2357

2358

2354

Kristin Lavy

**Turn 05, 2005-03-11. The Hurkle Hiders and Hurkle welcome Lavy's Learners.**

Welcome! You have made Hurkle and the Hurkle Hiders very happy! Yes, Hoisington's guesses really helped you. Lavy's Learners have learned the power of cooperating with other players while playing a multi-player game. It works in real life too.

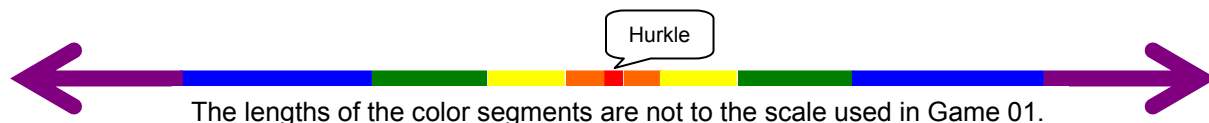
**Guess #13: 2357 Clue: HURKLE!!! Let's play!**

Guess #14: 2358 Clue: RED

Guess #15: 2354 Clue: ORANGE

Congratulations. You have found Hurkle! You played **HurkleQuest on the Number Line** exceedingly well. Good play, Lavy's Learners.

**About Hurkle** (See this information in **The Fourth Grade Hurkle Squad** above)



## Hoisington's Hurklefinders

**Turn 01, 2005-03-03. Hoisington sends his team's first set of three guesses.**

Our guesses are: 3445, 9000, 320

**Turn 01, 2005-03-03. The Hurkle Hiders respond**

Ahoy Rob Hoisington and your 4th Grade HurkleQuesters,

Thanks for your Turn 01 guesses. **Would your team like to give itself a cool name?** Here are your guesses and clues.

Guess #1: 3,445 Clue: VIOLET

Guess #2: 9,000 Clue: VIOLET

Guess #3: 320 Clue: VIOLET

Three VIOLETS. A-OK. Now you know three places in Hurkle space to avoid! You can expect mostly VIOLETS and BLUES in your first few guesses -- unless you are very lucky. Remember, Hurkle is hiding in a space of 10,000 points. How can you best use your three VIOLET points in your next three guesses?

We suggest that you put a **big number line** on a wall of your classroom and number it from left to right 0, 1000, 2000, 3000, and so on up to 9999 (or 10000 if you prefer).

Put a violet mark at 320. **Estimate** its position on the number line

Put a violet mark at 3,445. **Estimate** its position on the number line.

Put a violet mark at 9,000. **Estimate** its position on the number line.

Use the number line to scope out your next three guesses. Hurkle eagerly awaits your next guesses.

**Turn 02, 2005-03-07. Hoisington sends his team's next set of three guesses.**

6000

4300

7900

Here's hoping for something other than violet!

**Turn 02, 2005-03-08. The Hurkle Hiders respond.**

Ahoy Hoisington's Hurklequesters,

Alas, alack, and oh heck. You are still in the violet wilderness. Graph your six guesses on a big number line and use them to guess where the grass is bluer or even greener. Here are your guesses and clues.

Guess #4: 6000 Clue: VIOLET

Guess #5: 4300 Clue: VIOLET

Guess #6: 7900 Clue: VIOLET

Your team started late in the game. We suggest that you contact another team and share guesses. In multiplayer games, and in real life, cooperation is a powerful tool! The other players are:

The Fourth Grade Hurkle Squad (LKlaus@fgsd.k12.or.us)

Lavy's Learners (Kristin\_Lavy@lincoln.k12.or.us)

**Turn 03, 2005-03-09. Hoisington's team responds quickly with their third set of guesses.**

2843, 2505, 2125

We are working with Lavy's Learners. By the way, we are known as Hoisington's Hurklebusters!

**Turn 03, 2005-03-09. The Hurkle Hiders balk at "Hurklebusters."**

Hurklebusters? We hope you mean no harm to friendly, playful, nonviolent Hurkle!

Hurkle loves cooperation and is happy to hear that you and Lavy's Learners are working/playing together. Share guesses and you will quickly zoom in on Hurkle's hiding place. Guesses and clues:

Guess #7: 2843 Clue: BLUE

Guess #8: 2505 Clue: BLUE

Guess #9: 2125 Clue: BLUE

You bid farewell to the violet wilderness of Hurkle Land as you move strongly into BLUE intervals on the number line. Keep guessing and cooperating with Lavy's learners.

**Turn 04, 2005-03-10. Hoisington's Hurklebusters become Hoisington's Hurklefinders!**

We didn't mean to offend...we are now Hoisington's Hurklefinders! Our round 4 picks are:

2346, 2355, 2375

**Turn 04, 2005-03-10. Hurkle loves the new name: Hoisington's Hurklefinders.**

Ahoy Hoisington's Hurklefinders,

Hurkle is so happy to learn that you are now Hurklefinders instead of Hurklebusters! Hurkle loves nonviolent, playful sentient entities. Here are your guesses and clues:

Guess #10: 2346 Clue: YELLOW

Guess #11: 2355 Clue: **RED**

Guess #12: 2375 Clue: YELLOW

Amazing! You moved from three BLUEs in Turn 03 to two YELLOWs and, tra la, tra la, a **RED**. Aha! We remember that you and Lavy's Learners are cooperating and sharing guesses. Thanks to the magic of cooperation, both teams are rapidly homing in on Hurkle's hiding place.

Keep guessing and cooperating,

**Turn 05, 2005-03-14. Do Hoisington's Hurklefinders find Hurkle?**

Thanks! We didn't have classes on Friday so we weren't able to make our last guesses until today. It was fun working with Lavy's Learners, and I hope we'll continue to cooperate with them. We're excited to begin the two-dimensional Hurkle game...great learning about coordinate graphing!

Our last guesses are: 2354, 2356, 2357

**Did Hoisington's Hurklefinders find Hurkle?  
Before moving on to the next page of this story, you decide.**

**Turn 05, 2005-03-10. Happy Hurkle and Hurkle Hiders write:**

Ahoy Hoisington's Hurklefinders,

You have made Hurkle and the Hurkle Hiders very happy! You and Lavy's Learners shared information; both of you found Hurkle in 15 guesses. You have learned the power of cooperating with other players while playing a multiplayer game. It works in real life too. Here are your guesses and clues:

- Guess #13: 2354 Clue: ORANGE
- Guess #14: 2356 Clue: RED
- Guess #15: 2357 Clue: HURKLE!!! Let's play!**

Think of the number line as a place to play, a space in which adventures can happen, a linear space of mathematical magic.

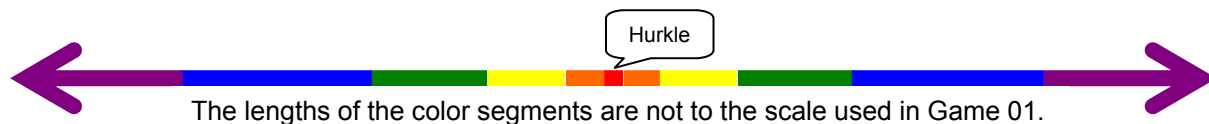
**What Do the Colors Mean?**

**HurkleQuest** is a search-and-find game with "fuzzy feedback clues." The clues are colors of the rainbow.

- Hurkle is hiding at a point  $x$  on the number line.
- $x$  is a whole number from 0 to 9999 ( $0 \leq x \leq 9999$ ). There are 10,000 possible values of  $x$ .
- $x$  = Hurkle's hiding place
- $g$  = player's guess
- $d$  = distance of the player's guess from Hurkle's hiding place.  $d = |x - g|$ .

$d =  x - g $	Color	The upper limits are factorial numbers
1 or 2	red	$2 = 1 \cdot 2$
3 to 6	orange	$6 = 1 \cdot 2 \cdot 3$
7 to 24	yellow	$24 = 1 \cdot 2 \cdot 3 \cdot 4$
25 to 120	green	$120 = 1 \cdot 2 \cdot 3 \cdot 4 \cdot 5$
121 to 720	blue	$720 = 1 \cdot 2 \cdot 3 \cdot 4 \cdot 5 \cdot 6$
721 or more	violet	

Hurkle's hiding place is the center of the red interval on the number line. On each side of the red interval is an orange interval. Next to each orange interval is a yellow interval. Et cetera, et cetera.



The Hurkle Hiders [Bob & George]