

BeNDy Math Content Guidelines – Phase 2

Welcome to the UX Writing Content Guidelines for BeNDy Math. You can click on any line in the Table of Contents below to jump directly to a section.

Mission and Vision

The mission of BeNDy Math is to create an online skills-based math learning platform that caters to the unique needs of individuals with ADHD and others who struggle with traditional forms of math education. BeNDy Math is designed to create a fun and engaging learning environment that empowers our users by allowing customization of the learning experience to fit their specific needs and preferences.

We aim to bridge the gap between traditional educational systems and students with learning disabilities. We aim to remove the barriers ADHD students face when learning math, making it not only fun and engaging, but something they can take ownership of.

Writing Goals and Principles

With every piece of content, we aim to:

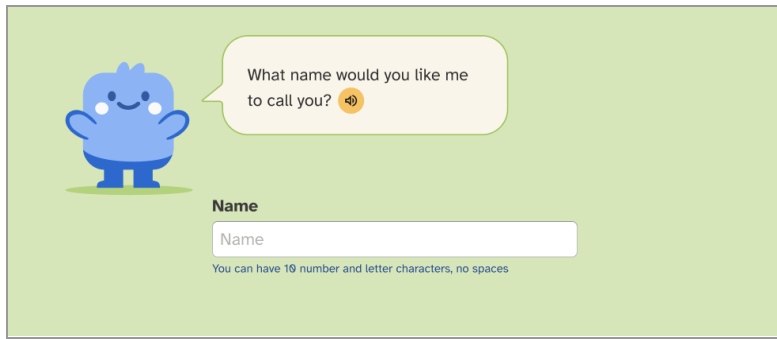
Educate – Teach learners what they are learning in school in a way that makes sense to them and at their own pace.

Empower – Enable learners with disabilities to engage in math with confidence through strong support and encouragement.

Respect – Treat learners with respect and communicate in a way that is considerate and inclusive.

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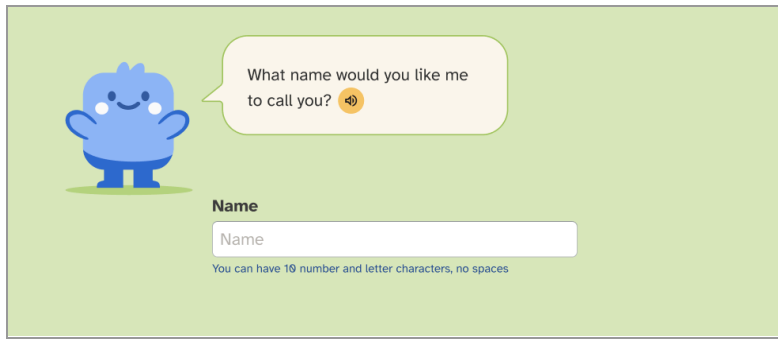
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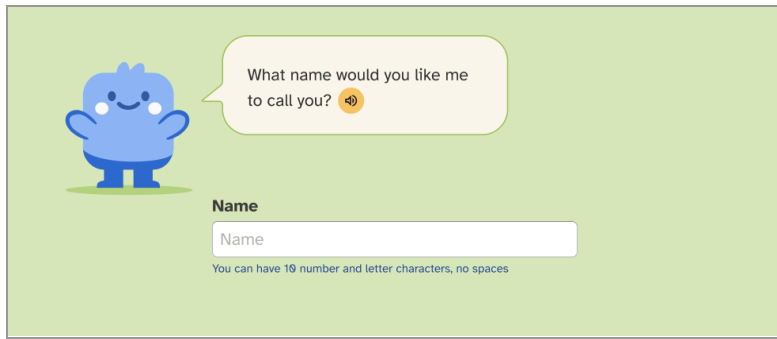
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Brand Narrative


Adjectives that describe the brand

- Enthusiastic
- Encouraging
- Relatable
- Conversational
- Inviting

Personality

- **If the brand were a person, who would it be like?**
 - **Bill Nye** - Enthusiasm/passion/zeal
 - **Alton Brown** - Passion/Presentation/Information
 - **Steve Irwin** - Enthusiasm/passion/zeal
 - **Levar Burton** - Empathy/patience/understanding
- **How would it think, feel, and behave?**
 - **Behave** - Your brainy study buddy that helps you master math in your own way!
 - **Think** - Intuitively, always provides guidance and support when you need it
 - **Feel** - Excited and passionate about their favorite topic and wants to spread that joy with you
- **What would be its main personality traits?**
 - Playful
 - Encouraging
 - Welcoming and inclusive
 - Patient
- **Describe the brand personality in one word.**
 - Empathetic (goal is to understand the users' needs and support them as they go through the app's math lessons)





What name would you like me to call you? 🔊

Name


You can have 10 number and letter characters, no spaces

- **What type of relationship/interactions would it have with its different audiences?**
 - **Grown-Ups** - Liaison; ally
 - **Learners** - Good friend; camp counselor

Audience

- Neurodivergent learners and learners who struggle with math (age 8-11)
- Grown-ups & educators (parents, teachers, adults) of neurodivergent learners

Personas



Billy

🏠 Age 8 🎓 Grade 3

📍 Austin, TX ❤️ Parents

🔑 **ADHD - Combined and ASD**

Visual Learner Kinesthetic Learner

OK with Math Solitary Learner Creative

"Those word problems really puzzle me. Why can't I understand it like others do? Being in school is already overwhelming enough."

Bio

Billy struggles with reading, writing, and comprehending word problems in math. His social and emotional challenges contribute to negative self-perception. A customized learning experience with accommodating visual elements and rewards would be beneficial.

Goals

- Find alternative ways of digesting math concepts despite reading difficulty
- Promote emotional growth and self-esteem

Needs

- Routine with scheduled sensory breaks
- Utilization of visual aids: color coding, alternate fonts, and clear visual hierarchy
- Customized "one-on-one" learning approach with personalized rewards
- Scaffolding complex problems
- Positive reinforcement and encouragement
- Engaging learning experience designed to stimulate curiosity

Support System

- **Parents** are highly involved in his study and activity planning
- An **occupational therapist** helps promoting his overall development and independence

Skills
compared to an average student of the same age

Skill	Progress
Numerical Skills and Knowledge	●●●●●●●●●●●●●●●●●●●●
Language / Reading	●●●●●●●●●●●●●●●●●●●●
Working Memory	●●●●●●●●●●●●●●●●●●●●
Time Management	●●●●●●●●●●●●●●●●●●●●
Self-Control	●●●●●●●●●●●●●●●●●●●●


Pain Points

- Struggles with reading, writing and understanding word problem in math
- Get frustrated when tasks are challenging or text information is overwhelming
- Get stressed by timed tasks and competition
- Lack of confidence resulting from difficult learning and social experiences
- Easily distracted and frequently switch between tasks
- Sensory processing disorder - highly sensitive to external stimuli (sound, movement, smell)

Devices

1 home iPad controlled by parents



What name would you like me to call you? 

Name

You can have 10 number and letter characters, no spaces



Cooper*

 Age 11

 Grade 5

 Orlando, FL

 Single Parent

 ADHD - Combined and Dyscalculia

Multi-Modal Learner

Pragmatist

Hates Math

Emotionally Reactive

"I struggle with numbers. Math just doesn't make sense to me, no matter how hard I try. It's frustrating!"

Bio

Cooper struggles with math concepts, number processing, and focus. He also faces challenges in emotional regulation, with tendencies towards anxiety and impulsivity. Cooper benefits from connecting abstract concepts to real-life examples and visual representations. A gamified learning experience would greatly enhance his engagement and enjoyment.

Goals

- Improve numerical skills, catch up with math learning at school
- Build math confidence and foster positive attitudes

Needs

- Visual representation of math concepts
- Relatable stories that make math concepts concrete
- Real-life scenarios for problem-solving strategies
- Explicit step-by-step instructions
- Scheduled breaks between studying sessions
- Recognition of progress and building confidence
- Personalized gamified learning experience with rewarding systems

Support System

- **The parent** is eager to help him but lacks the time and capacity for constant monitoring and guidance
- **A math tutor** provide one-on-one instruction in addition to other assistance

Skills

compared to an average student of the same age

Numerical Skills and Knowledge



Language / Reading



Working Memory



Time Management



Self-Control




Pain Points


- Struggles with numerical concepts and arithmetic operations
- Difficulty in remembering and applying mathematical rules
- Restlessness and difficulty maintaining focus
- Anxiety and low self-esteem due to academic underperformance
- Slow processing speed in math tasks
- Emotional instability and defiant behavior disrupt learning environment and relationships
- Sensitivity to the pressure of competition

Devices

1 personal iPad and 1 smartphone


Note: Cooper fits our target user profile based on secondary research, but dyscalculia participants were not included in Phase 1 user study.




What name would you like me to call you? 


Name


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Annie


 Age 9


 Grade 4


 Boston, MA


 Parents & 1 Sibling


 ADHD - Inattentive

 Visual Learner

 Kinesthetic Learner

 Likes Math

 Solitary Learner

 Perfectionist

"Math homework is really boring for me, so my mind wanders a lot! I wish it could be more like a fun game."

Bio

Annie grasps math concepts but struggles with multi-step problem solving, staying focused and remaining motivated. Enhancing her learning experience involves presenting math problems in a fun and engaging way.

Goals

- Find more fun practice complementary to school teaching to achieve academic success
- Have a more rewarding and engaging math learning experience

Needs

- Structured routine with regular breaks
- A quiet learning environment
- Study buddy or parental guidance for support
- Fun, game-like learning experiences
- Progressive rewards to maintain motivation
- Recall previous steps in multi-step problems
- Clear instructions, checklists and reminders

Support System

- Parents** assist with planning checklists and provide reminders
- School teachers** offer reassurance and keep track of her progress

Skills
compared to an average student of the same age

Numerical Skills and Knowledge

Language / Reading

Working Memory

Time Management

Self-Control

Pain Points

- Easily bored and unmotivated by uninteresting or repetitive subjects
- Experiences switch errors during math homework
- Struggles to initiate tasks due to perfectionism and perceived difficulty of homework
- Struggles with task completion and has a tendency to rush

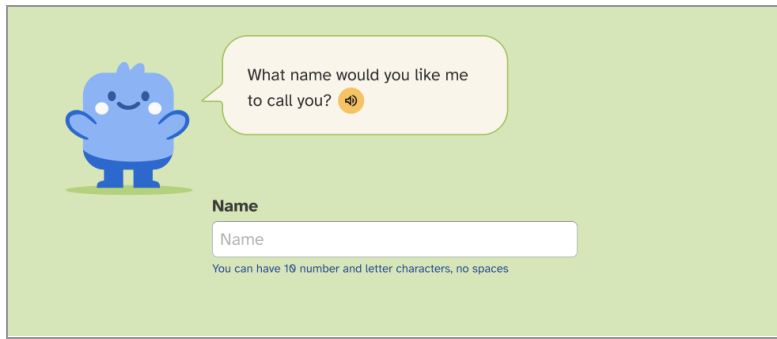
Devices

- 1 school iPad with strict content filtering
- 1 home laptop shared with family

User Stories

- As a learner, I want the content to be presented clearly so that I can follow each step
- As a learner, I don't want to forget previous steps, so that I can learn how to solve the problem
- As a learner, I want explicit instructions, so that it is clear what I need to focus on
- As a learner, I want a gradual movement to mixed types of problems (e.g. +++---, then +++-+---, then +-+--+), so that it is easier for me to follow along

Voice



Voice Values

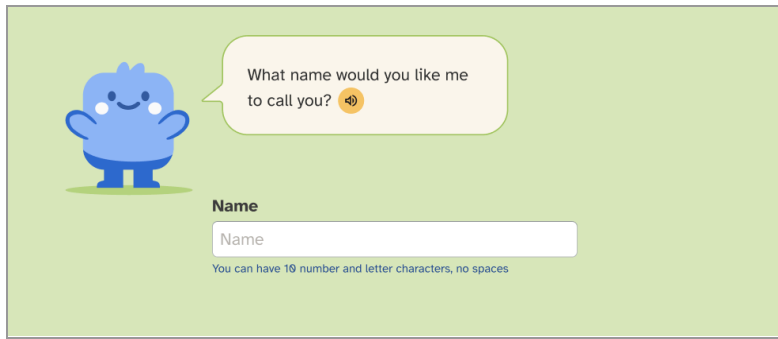
The app's core values help establish our voice:

- Empowering learners and their learning journey
- Equipping learners with the tools to succeed
- Tailoring the teaching methodologies according to our learners' needs, preferences, and learning styles
- Embraces and celebrates diversity in all learners
- Pursue growth and learning outside of a classroom or academic setting
- An encouraging and relatable tool that gives learners the power to succeed on their math journey

Voice Guidelines/Qualities

The app's voice values help guide the overall voice. This means that when we write copy, we are:

- **Enthusiastic**
 - We want our learners to feel excited about learning math, especially if they have felt discouraged by their math learning journey before. Math should be fun, not disheartening.
- **Encouraging**
 - We want to empower our learners with their own learning. We want to equip our learners with a growth mindset and to be able to stand up every time they fall down.
- **Relatable**
 - We want our learners to feel like the app is a peer, someone they can rely on and work with during their learning journey.
- **Conversational**
 - We want to speak to learners in the way they're used to in their everyday lives.
- **Inviting**



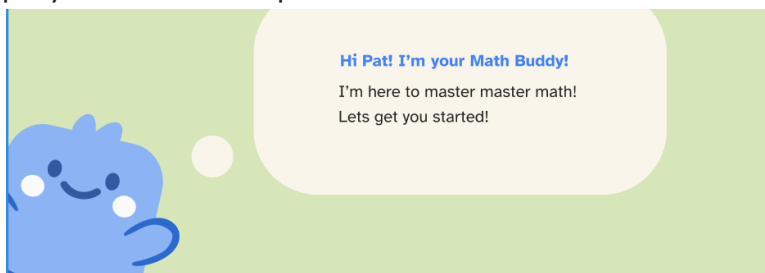
- We want our learners to feel like they can take on math learning anytime, anywhere. We've made our product accessible to all types of learners. We want our content to be inviting and approachable to all.
- **Patient**
 - We want our learners to feel like they can learn at their own pace, not being limited to time constraints or having to meet deadlines.

Tone

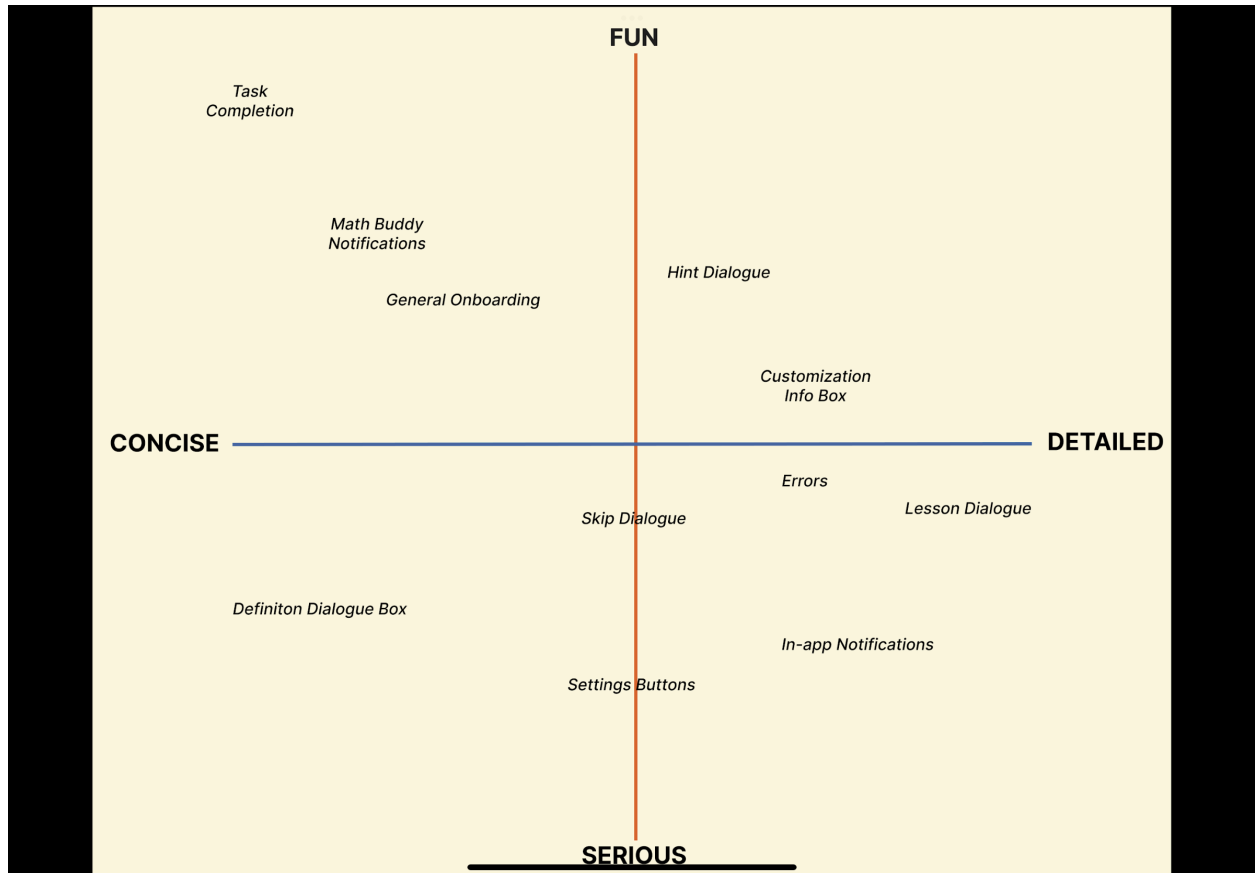
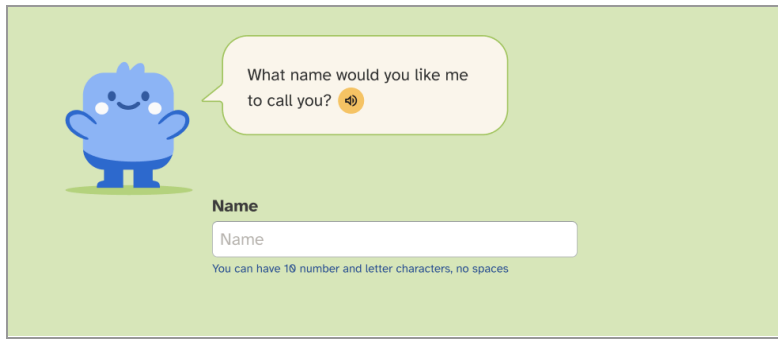
Tone of Voice

- **Playful** or Serious
- Formal or **Casual**
- **Respectful** or Irreverent
- **Enthusiastic** or matter-of-fact



Example: "Hi Pat! I'm your Math Buddy! I'm here to help you master math!" exhibits a playful,, casual, respectful, and enthusiastic tone of voice.





Tone Map



Examples of Use

Context/Situation	Do 	Don't 
Positive Situation (Correct answer/ Success message)	<ul style="list-style-type: none"> Be encouraging, conversational, and human <ul style="list-style-type: none"> (e.g. "That's amazing!" "You did it!" "Great progress!") 	<ul style="list-style-type: none"> Sound dry or robotic <ul style="list-style-type: none"> (e.g. "Your answer is correct") Sound too childish or "babyish"



What name would you like me to call you? 

Name

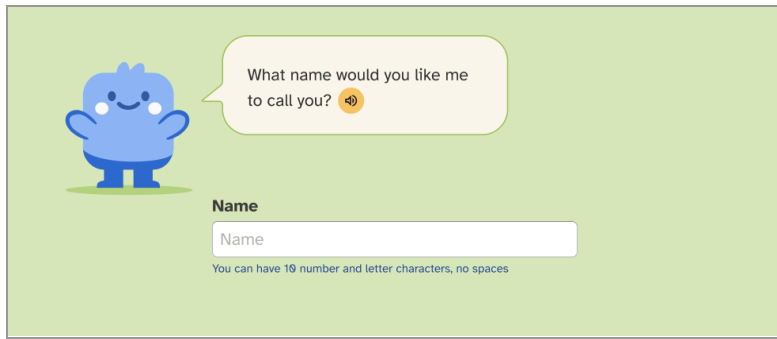
You can have 10 number and letter characters, no spaces

Neutral Situation (Informational copy/Body copy)	<ul style="list-style-type: none"> • Sound clear and concise in simple language <ul style="list-style-type: none"> ◦ (e.g. "Before you start, we just have a few questions.") 	<ul style="list-style-type: none"> • Sound overly academic or use jargon • Sound sarcastic
Negative Situation (Incorrect answer/Error message - field)	<ul style="list-style-type: none"> • Provide a clear prompt with choices to proceed • Encourage making attempts and the process rather than the end result <ul style="list-style-type: none"> ◦ (e.g. "Almost there! Let's try again" "Great try! Let's look back at the steps again") • Be empathetic 	<ul style="list-style-type: none"> • Assign blame • Use infantilizing language • Sound sarcastic • Use language that indicates shame or rejection <ul style="list-style-type: none"> ◦ (e.g. "Wrong," "Incorrect," "Too bad!" "That's a mistake.")

Content

Lesson Language

- Present math problems using the correct symbol (x instead of "times", + instead of "plus", etc.)
 - Do this: "What is the product of 16 x 3?"
 - Not this: "What is the product of 16 times 3?"
- Use simple and direct language when explaining steps in a problem
 - Do this: "Multiply 10 and 3." or "What's 10 x 3?"
 - Not this: "Multiply to find the product of ten and three."
- All mathematical terms will include an in-app definition that can be accessed by the learner (the definition of product or expanded form)



Grammar

- Use contractions as often as appropriately possible to encourage a natural flow of conversation
 - Do this: “It’s time for your solo challenge”
 - Not this: “It is time for your solo challenge”

Punctuation


- Use punctuation at the end of sentences (period, question mark, exclamation point). *Example*:
- Use the Oxford comma in a sentence with a list of three or more items.
- CTA buttons will not use punctuation marks


Numerals

- For math problems, including word problems, use the numeral (i.e. 2, 4, 10).
- When the number is outside of math problems, if it’s between 0–9, spell it out. If it is 10 and over, use the numeral.
 - 0 – 9
 - Do this: “When you add, put two or more numbers together to find the total.”
 - Not this: “When you add, put 2 or more numbers together to find the total.”
- Numerals over 3 digits get commas (i.e. 1,248)

Formatting

- Body text and descriptions will be left-aligned for better readability, with the exception of onboarding pages, pop-ups, and the reflection page. *Example*:




What name would you like me to call you? 





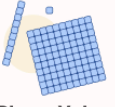



Name

You can have 10 number and letter characters, no spaces

1 — 2 — 3 — 4 — 5 — 6



Which of these topics are you comfortable with?


 Addition	 Subtraction	 Multiplication	 Division
 Place Value	 Counting Money	 Measurement	 Telling Time

- Utilize different font weights, color-coding, visual hierarchy, or grids to help the learner focus and prioritize the targeted content. *Example:*

← 1 — 2 — 3 — 4 — 5 — 6

Select your choices by toggling on and off for the way things look when learning math.

Question: If you have 2 jars with 5 marbles in each jar, how many marbles do you have in total?




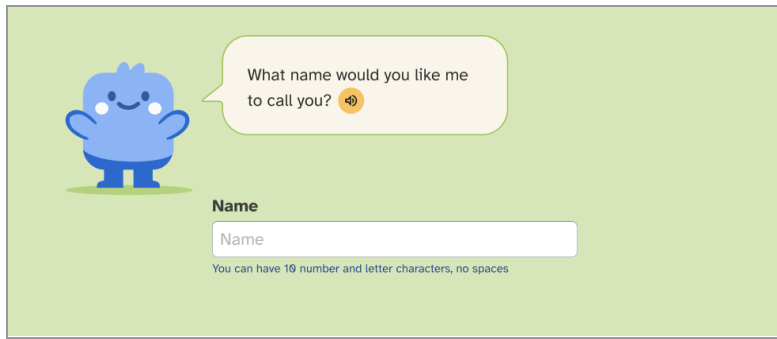
Medium font ☒

Bionic font ☒

Square grid ☐

High contrast ☐





Parts of Speech

- Pronouns
 - Gender neutral
 - They/them/their
- Interjections (*used by Math Buddy*)
 - Wow
 - Yay
 - Bravo
 - Hey

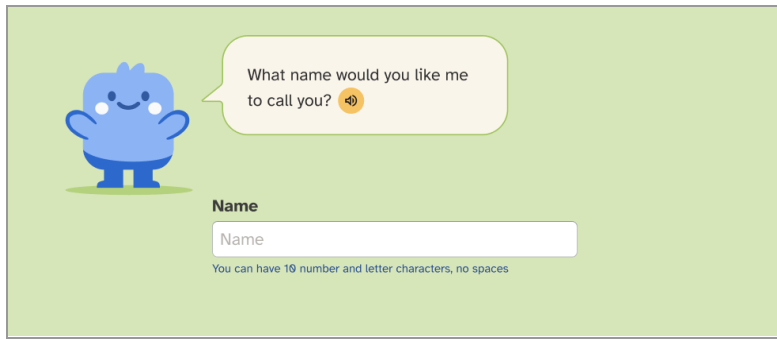
Capitalization

- Only titles use title case (“Box Method”, “Creation Station”), other body text will use normal capitalization (“Enjoy your break, you deserve it!”)
- CTA buttons will also use title caps (i.e. “Practice More” and “Keep Going”)
- Title sentences should have only the first word capitalized (i.e. “You’re all set!” not “You’re All Set!”)
- Title phrases should have all words first-letter capitalized (i.e. “My Multiplication Journey” not “My multiplication journey”)

Accessibility

Alt. Text

- Add alt text to all non-decorative images.
- Keep it short and descriptive, like a tweet.
- Don't include “image of” or “photo of”.
- Leave alt text blank if the image is purely decorative.
- It's not necessary to add text in the Title field.

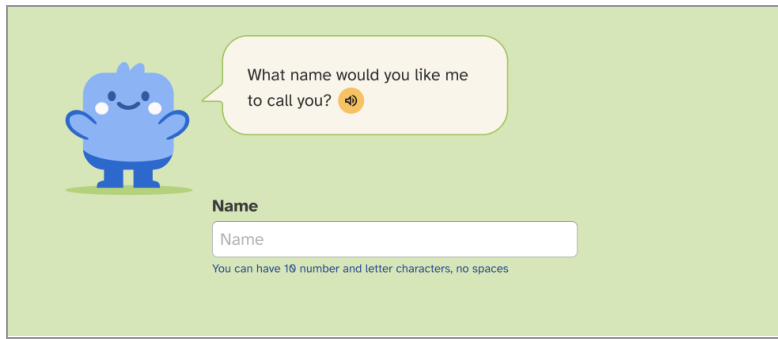


Content

- Use plain, direct, and concise language
- Second-grade reading level
- No jargon
- No abbreviations
- No acronyms
- Any mathematical terms will include an in-app definition
 - example: “multiplication”

Glossary

- **Adults:** This can include parents, guardians, caretakers, older siblings, etc. This does not include educators, teachers, tutors, school aides, etc.
- **Bionic Font:** Type of font that strategically bolds parts of words to make text easier to read and process.
- **Brown Noise:** Neutral, dense sound that contains every frequency our ears can detect (like white noise but has a lower, deeper quality).
- **Check List:** The step-by-step to-do list of how to solve a problem.
- **Draw:** Sidebar option that allows learners to freehand their own notes with a pen that can be customized by color and brush size, with a highlighter option.
- **Learner:** Our user and the star of the show!
- **Learn Together:** The guided practice during a lesson. Math Buddy works with the learner through the problem.
- **Math Buddy:** Mascot, advocate, and friend to our learners. They provide guidance and fun for the whole math journey.
- **Method, Array:** A method involving rows and columns to match the problem and find a solution
- **Method, Box:** A method that uses expanded form to solve the problem
- **Method, Stacked:** A method in which the bottom number is multiplied with the top number to solve for answer



- **Reflection:** The screen at the end of the lesson that prompts our learners to input their feelings on the lesson from 1 to 5; This information is intended to be used for future algorithms and for grown-ups to see.
- **Solo Challenge:** Independent practice during a lesson. The learner takes on the problem by themselves but can find hints from Math Buddy to help them through the problem.
- **Tools:** Sidebar option that is displayed when the learner is solving a math problem during a solo challenge.
- **White Noise:** Noise containing many frequencies with equal intensities.

Phase 2 Recommendations

- Develop Tone Spectrum guidelines
- Develop lesson structures
 - (i.e. how many problems, types of problems, topics)
 - Phase 1 research led us to see that Multiplication, Division, Fractions, and Decimals are consistent topics for the age range.
- Create content for the guided lesson videos
- Continue to determine approved and unapproved content
 - (i.e. phrases/words/tones)
- Develop a narrative for Math Buddy / or any other mascot
-