CASE STUDY

Greeley-Evans School District 6

IM K-5 MATH™



About IM

Illustrative Mathematics® (IM) is guided and inspired by educators who are doing extraordinary work. Since our founding as a non-profit organization in 2013, IM has become a leader in problem-based mathematics education. Our comprehensive, standardsaligned, K–12 curriculum has reached over 1.5 million students. At the same time, our robust catalog of professional learning has served more than 28,000 teachers.

We know this success is the result of mathematicians, educators, and communities working collaboratively. Together, we create the IM Classroom, where *all* students are active participants in their learning. The IM Classroom stands on these four pillars:

- Teachers and students use an IM Certified[®] curriculum and practice IM's problem-based instructional model with integrity.
- Teachers participate in IM Certified[®]
 Professional Learning and have access to implementation support.
- School and district leaders understand and support the systemic changes that are necessary to change teachers' practice.
- Families and communities are engaged with and support their students' learning.





In Fall 2022, Illustrative Mathematics set out to identify a school district that exemplifies the IM Classroom model. It didn't take long to find one. In fact, we found many teams doing amazing work implementing the IM curriculum. Our team visited school offices, classrooms, lunchrooms, and gymnasiums. We met with educators and heard stories about why the decision to adopt the IM curriculum was integral to their school district's vision of equitable instruction for all students.

Greeley-Evans School District 6 is one of the districts we chose to spotlight. The case study presented on the following pages captures the intimate conversations that IM had with the school leaders, teachers, and students of Greeley-Evans. It describes their journey from adoption through implementation of IM K–5 Math™ from **Imagine Learning,** an IM Certified[®] partner. While the narratives are specific to Greeley-Evans, the educational themes and pathways to success will resonate with many school districts across the nation.

We hope you take inspiration in the stories that you will read about Greeley-Evans School District's journey. Join us in IM's vision of creating a world where all learners know, use, and enjoy mathematics.

THE IM EXPERIENCE

The IM Experience connects educators to engaging experiences and resources. It elevates the IM curriculum journey in a new way — through events, case studies, webinars, support services, digital resources, and more. It is an experience that IM is curating and developing to engage our audiences so they can share what they need beyond adopting our curriculum.



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Greeley-Evans District Demographics

AT A GLANCE 🔀



This case study highlights Greeley-Evans School District 6 and their journey from adoption through implementation of IM Math[™]. Through interviews with teachers and school and district leaders, we learn why their decision to adopt the Illustrative Mathematics curriculum was integral to their vision for equitable instruction for all students.

ABOUT THE DISTRICT 😽



A Community Where Everyone is Welcome

With over 22,000 students speaking 78 different languages, it goes without saying that diversity is a fact of life for the Greeley-Evans School District. The student body is 63.1% Hispanic, 29.7% White, and students come from nearly every continent. District leaders know that such diversity contributes to broader and deeper understanding in all facets of education. They are striving to achieve equitable instruction for all students.

In pursuit of this goal, Greeley-Evans developed a team specifically for the purpose of ensuring equitable practices for all students and staff members. The District Adoption Committee's tasks, among many others, include creating culturally responsive learning environments that reflect the entire student body. Greeley-Evans educators describe their district as a close-knit community. The attrition rate is low (approximately 2%). As such, the district is well-positioned to carry out its mission of investing in students and their futures. This investment includes a brand new high school and a K–8 school for preengineering. The district also consistently seeks to develop practices that accurately consider and incorporate the cultural and linguistic diversity of their students.

As part of its commitment to inclusion and cultural competence, Greeley-Evans School District actively seeks to bring more young learners into their schools. The district now partners with the Migrant Education Program and the Families in Transition Program. These two programs help children of migrant farmers and families experiencing homelessness to attend school and receive a complete education.

Greeley-Evans teachers echo the sentiments of inclusion and diversity as they create classroom cultures grounded in a sense of belonging. Alyssa Diaz, a 2nd grade teacher at Scott Elementary, says, "We try to celebrate diversity. We've been really pushing for exploring and celebrating all of the different cultures we have represented throughout our school."

CHOOSING IM 🔀

A Shift Towards Centering Student Thinking

With 17 elementary and K-8 schools implementing Illustrative Mathematics, the Greeley-Evans School District has a lot riding on the program. The decision to replace their previous curriculum with IM was not taken lightly. In fact, the district went to great lengths to ensure that they made the right decision for their students.

The District Adoption Committee's philosophy focuses on the integration of learning centered on student thinking, the mathematical practices, and culturally responsive pedagogy. This is a combination that the IM K–5 Math™ curriculum is particularly positioned to accommodate.

The teacher-facing materials in IM K–5 Math help teachers respond to student thinking and engage students in gradeappropriate, rigorous, and accessible math tasks. The materials also provide teachers with the guidance and tools they need to ensure equitable instruction for all students. These include embedded suggestions for launching into realworld and relevant contexts, monitoring student work, question posing, and scaffolding the learning within standards.

IM's problem-based instructional model enables students to learn math by doing math. Teachers take on the role of a facilitator as opposed to that of a lecturer, and they operate with the belief that all students are capable of learning mathematics. This model allows students to share their prior and developing knowledge, as they connect what they already know to the new mathematical concepts they are learning.

John Fischer

K-12 Math Facilitator, Greeley-Evans School District 6



K-12 Math Facilitator John Fischer shares his thoughts on why the Greeley-Evans chose the IM curriculum and how the process has gone to this point. Fischer says, his "role with the IM rollout has been around professional learning for principals." So, he is in an especially unique position to speak about the adoption of IM in the Greeley-Evans schools.

Regarding the decision to select IM instead of other mathematics curricula, Fischer says: "The adoption committee wrote a philosophy statement around what we believe math instruction should look like, based on research, before we began the adoption process. We spent a couple of months reading *Taking Action* by DeAnn Huinker and Victoria Bill, and then collaboratively writing our philosophy statement as a district team. Illustrative Math was the resource that we felt best fit that philosophy."

Fischer shares how the implementation process has shown that the district made the right choice. "IM was a breath of fresh air. For a lot of teachers in our system, IM has been a very big philosophical shift in math instruction. We've gone from, I do, we do, you do, to problem-based learning," he explains, "We really believe, and our adoption committee really believed, that was the right shift, and research supports that."

IM was a breath of fresh air. For a lot of teachers in our system, IM has been a very big philosophical shift in math instruction." JOHN FISCHER, K-12 MATH FACILITATOR, GREELEY-EVANS

John Fischer, K–12 Math Facilitator for Greeley-Evans, notes that this transition has not been smooth sailing across the board. "That's a really hard shift to make for teachers," Fischer explains. "I think a lot of our teachers are making that shift and are starting to see the power that comes from building different habits in students. They are helping students own their math learning, as opposed to sitting and passively receiving. They're starting to really see the benefits of that."

A New Pathway towards Student Achievement

The decision for Greeley-Evans to switch to the IM curriculum was not exclusively philosophical. Teachers and administrators felt that their previous curriculum had not produced the necessary outcomes for students. They saw a need for a shift in math instruction.

Fischer shares this sentiment: "I think one realization that we've had the last several months is that with an, I do, we do, you do, resource, when you hand out an exit ticket, you can really get a lot of false positives. These students really look like they've got it because they did just what I did on the board, and their paper looks just like mine did. So, I think in the past, we got a lot of false positives from that classroom-level exit ticket data. Whereas now, some of our teachers that I think are having the hardest time getting on board — it's because they look at that data from those cool-downs and they say, wow, look at all my students that didn't get it.



We really wanted a curriculum that met our purpose as a school too, and our purpose as a school is to prepare students to choose the life that they want."

ALYSSA DIAZ, 2ND GRADE TEACHER, SCOTT Elementary School "Whereas, if we look at our state test data, we know that those students have always not gotten it, but now we can see who they are. And that doesn't feel very good for teachers, I think. But the transparency is helpful for us to know who those students are so we can support them."

Meeker Elementary Principal Alison Ferguson agrees. "Math scores were not moving in the right direction," she explains. "I was not on the adoption committee for math, but we knew we needed something that would move our kids and something that was teaching them the concrete, but also giving them a chance to do the work and explore, and not that complete direct instruction math, and I feel like IM has really hit that."

Along those same lines, Alyssa Diaz notes: "We really wanted a curriculum that met our purpose as a school, which is to prepare students to choose the life that they want." One way to do this, Diaz says, is to truly engage students' abilities. She adds. "We wanted to find a curriculum that allows students to fall in love with math as well. I know that a lot of our staff were unhappy with the previous curriculum. We weren't seeing results. We weren't seeing students mastering concepts. That was probably the biggest push to change from that curriculum."

In short, the Greeley-Evans School District recognized that they needed a new curriculum. From a pedagogical perspective, their previous mathematics instruction did not meet their students' needs. Culturally, the prior instruction was not inclusive enough to reflect their diverse student body. Finally, the old methodology did not result in the high outcomes the district expects for its students. After careful consideration. Greelev-Evans chose Illustrative Mathematics from IM Certified[®] partner, Imagine Learning, and the district is already seeing success with its adoption and implementation.

Leadership Strategy

Implementing any new curriculum presents challenges. In the case of Greeley-Evans, school leaders strategized to solve for potential roadblocks from outset. They wanted to make the transition as smooth as possible for everyone — teachers, students, and parents alike.

One particular strategy the district applied was appointing teachers at each school to work with district leaders to facilitate ongoing professional learning for IM K–5 at their schools. From a teacher's perspective, this builds trust and develops confidence in the material, as well as laying a foundation of support that is consistently available as hurdles present themselves.

John Fischer talks about his experience with the professional learning side of the implementation process: "We meet with principals about once a month for professional learning. I have a team of teacher leaders, two from each school. We have a primary and an intermediate representative from each school that we call our Powerful Math Leaders. Between our lead teachers, our principals and our instructional coaches, they're having the same learning experience, so they can go back into their buildings and be a team that can support each other for implementation."

Tammy Hermance, District Elementary Curriculum Coordinator for Greeley-Evans, points out that the purposeful flow built into the IM curriculum has helped teachers implement the program. "We've done a lot of professional development around pacing," she says. "We love the unit planning guides. These guides were very helpful with giving our teachers a big-picture view of a unit and helping them understand how the lessons fit together. I would say that one of our biggest ah-ha moments in our first year was realizing that you really need to read the narratives at all levels — unit, section, lesson, and activity."

Hermance goes on to describe how understanding the intentionality of IM's flow helps teachers support students to build their mathematical understanding. She says: "It has made a substantial difference having teachers really reading the narratives and knowing how things fit together — that it's not just by happenstance that this program was put together. There really is intentionality behind it."



TAMMY HERMANCE District Elementary Curriculum Coordinator

IN K-12 Math Overarching Design Structure



IM prides itself on the coherence within our materials as concepts flow from one unit and one course to another. This applies equally to individual lessons. From warm-up through cool-down, the lesson plans have been designed with student engagement and comprehension in mind, from start to finish. Many of the teachers and administrators in the Greeley-Evans School District have noted this structure and are taking full advantage of it.



RESULTS 🔀

Impact on Students

The Greeley-Evans School District is pleased with their decision to adopt IM on principle. At the same time, they are seeing genuine change in their classrooms that are a direct result of using the IM curriculum.. John Fischer explains how the district is measuring initial success with their new curriculum. "It's measured in lots of different ways," he explains. "I think the biggest one is state test scores. That's one everyone's looking at to see, 'Are we making a dent, are we moving the needle?' That's a big part of it. We want to see our achievement data go up, but we know there's a whole lot more to the story than that number."

Fischer continues: "We're also looking at, in the short term: Are students tackling a problem and sticking with it? Do they have the drive and the curiosity to stick with something and really figure it out? Do they have some tools in their toolbelt that they can try, different ways that they can approach a problem? Are they willing to look at a problem from a couple different approaches? I think these are the things that are half the battle before we even get to some of the harder skills of computation."

I really appreciate that IM offers a new opportunity for our students to see math in a different way."

MONICA WILLIAMS, 3RD GRADE TEACHER TOINTON ACADEMY

Fischer says that student discourse is another key indicator of the program's effectiveness: "When we see strong discourse, we know that achievement is going to follow and that growth is going to follow. With the previous curriculum we had a lot of discourse, but it wasn't necessarily mathematical discourse. It wasn't about the ideas that we wanted students to wrestle with. So, one indicator a soft indicator and a short-term indicator of success for us right now — is this: Is the discourse mathematical? Is it about the ideas we want them to wrestle with? Not just about, well, here's what I did, what did you do? Instead: Here's what I was thinking about, and here's why I made this decision, and here's why I did it this way. So, when we see richer discourse, that's a success indicator, obviously, short term, but we know that's leading in the right direction."

Greeley-Evans teachers and school leaders have also noted a surprising effect of implementing the IM curriculum. Improvements in discourse have actually decreased behavioral issues in the classroom. (See feature on pages 14–15).

In sum, the district has continued to observe qualitative improvements as a result of adopting the IM curriculum. These include: more resilience and persistence from students, stronger engagement and discourse directly related to mathematics instruction, and better behavior in math classrooms.

Student Expression and Mathematical Identity

Education success comes in multiple ways. While mastery of course material is paramount, it is equally important for young learners to feel welcomed, comfortable, and free to express themselves in their shared educational environment.

With the IM curriculum, the district is meeting these goals through instructional routines and launch activities that invite all students to the math. They encourage students to bring their whole selves to each lesson. Greeley-Evans teachers and leaders value the contributions of each individual student. This core value is visible beyond the interactions between educators and students in classrooms. It extends throughout each school building to the cultural displays and the array of posters and quotes that encourage students to embrace their uniqueness and know their worth.

Similarly, IM K–5 Math is designed based on the belief that all students

have brilliant mathematical ideas and valuable experiences that contribute to the learning community. The curriculum supports teachers to implement culturally responsive pedagogy and serves as a resource for mathematically relevant and authentic contexts. These contexts provide opportunities for students to see themselves in the activities or learn more about the cultures and experiences of others.



"Will I Ever Use Math?"

This is a question many students ask. When the Greeley-Evans School District opened their Tointon Academy of Pre-Engineering, they answered that question with a resounding "yes!" The Academy focuses on integrating engineering concepts into the core subject areas of math, literacy, science, and social studies. With the IM curriculum, schools like Tointon are empowering students to solve problems that arise in everyday life.

Illustrative Mathematics CEO and cofounder Bill McCallum writes about this "Will I Ever?" question in his blog *What Does It Mean to Use Mathematics?* "If we think of using mathematics as not just 'doing the math,' but using the concepts of mathematics," McCallum writes, "Then we have a good answer to the student's question." As more students gain access to IM's problem-based instruction, they will discover for themselves the value and usefulness of mathematics.



Fluency in IM K-5 Math

IM K–5 Math includes fluency development as a part of its coherent design. As students experience the warm-ups, lesson activities, and centers, they have numerous opportunities to practice and come to know their math facts. Within and across grades, the IM curriculum helps students develop fluency using the following progression:

- Students learn the meaning of the operations and the relationships between them.
- Students start to learn their facts.
- Students relate more complicated facts to simpler ones.
- Students know their facts.

Learn more about supporting fluency development with IM K-5 Math.

Monica Williams, third grade teacher at Tointon Academy, values IM's individualized approach to learning. She says: "I really appreciate that IM offers a new opportunity for our students to see math in a different way. I appreciate the different demographics that we see being shown for our students, including students with different disabilities and abilities. It is really nice to see in the program." Tammy Hermance believes that IM delivers on all fronts. She says: "What I love best is the problem solving. It's nice that it has activities and routines inside of it that allow all students to come in from wherever they are. So, we have students who are working below grade level, they are able to enter the warm-up routines or activities from where they are. We can meet them where they come in and then use the synthesis to help take them further. "I love that students can come in and work together, and they're talking about math. I would say that was one of the highlights when we first started with our implementation — that teachers were happy to see students getting really excited about math. As I went out to schools within that first month, teachers and principals were saying to me, 'Our students are really excited about math. They haven't been excited about math in a while, and they're excited about math now.' So, that's a great thing."

One source of excitement for students are the interactive centers that are embedded as part of the lessons in Kindergarten and Grade 1, and are included as suggested activities in Grades 2–5. Centers are standards-aligned game activities that build across multiple stages. They help students review prior learning, address unfinished instruction, or practice grade-level content.

Hermance also shares her thoughts on these centers and how they have enhanced the IM experience for both teachers and students: "That was one of the things we decided from the beginning. We come from a belief of appreciating differentiated support. We spend 60 minutes on grade-level content, and then we have an additional 30 minutes to spend in center time providing that differentiated support. We are fortunate across our district to have a 90-minute math block.

"And it's differentiated support, where the teacher can pull small groups. Students can be working at those centers. I know as our teachers have seen the digital centers in Imagine Learning Classroom, they've been excited about that. I love the way the centers have the different stages because that helps teachers to be able to differentiate and makes it easy for them.

"We're having a lot of discussion right now around fluency. The centers support fluency, so we have to make sure our teachers understand the fluency practice is in the centers even though it looks different. They are used to seeing fluency as repeated fact practice. It is a different philosophy."

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Squares in a row wins

TAMMY HERMANCE, ELEMENTARY CURRICULUM Coordinator for greeley-evans

FEATURE

DOES IM K-5 MATH HELP REDUCE BEHAVIOR CONCERNS?

Does IM K–5 Math help reduce behavior concerns? An unanticipated but welcomed result of implementing the IM curriculum was discovered at Meeker Elementary School when Principal Alison Ferguson conducted an internal review of their behavior statistics, and saw significant improvement. She attributes this success, in part, to the curriculum's focus on student thinking. Because the lessons rely on active student participation, students are more engaged during math time, which positively impacts student behavior. Ferguson recalls:

"We conducted a study last year over our behavior, and when I came here four years ago, we had significant behaviors, almost 700 behavioral referrals in a year. Last year, we were down to below 300. But we were not getting them during math when we first implemented IM, because kids were actually engaging in the work, and they were expected to engage. It wasn't just a sit and get, and that's huge. We had to get them out of passive learning, and IM has helped with that in a lot of different ways."

"We had to get them out of passive learning, and IM has helped with that in a lot of different ways."

Schools across the country have seen an uptick of behavioral issues since the pandemic. A 2022 report by The National Center for Education Statistics (NCES) found that 80% of schools reported that the pandemic had negatively impacted student behavior. For Meeker Elementary School, however, negative student behaviors decreased, and were ultimately eliminated during math time with IM K–5 Math.



ALISON FERGUSON Principal, Meeker Elementary School

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OF THESE BEHAVIORAL REFERRALS WERE DURING MATH

LOOKING AHEAD 😣

Student Success



As Greeley-Evans has moved forward with implementing the IM curriculum, not all teachers have adapted at the same pace. This may be due in part to pedagogical and philosophical differences. In some cases, it's also a matter of how teachers are used to teaching.

Principal Ferguson shares her thoughts on this point: "I have a few teachers who absolutely love every minute of math, and some who are still working on shifting their mindset a little bit, but that's okay. It's not that they don't like it. It's just that mindset shift, which is harder to make sometimes with more veteran teachers."

Thankfully, a district as tight-knit as Greeley-Evans has the capacity to plan ahead and work to overcome whatever challenges the teachers face.

For instance, Tammy Hermance says that there were many times during the previous school year when she was approached by a teacher with questions about the IM curriculum. Each time, she says she was able to support and provide answers to teachers, who were then able to improve the learning experience for their students.

Diversity Is an Educational Asset

The goals of Greeley-Evans continue to align with the diversity of their students. This is one major reason why the district chose the IM curriculum. IM lessons offer a novel path for learning that incorporates culturally responsive materials throughout. As teacher Paige Baldwin at Maplewood Elementary School explains, "Students really like the diversity they see in the images within the curriculum. They say, 'That kid looks like me!' They get so excited to see images they can relate to."

Antonia Fornaro, fourth grade teacher at Meeker Elementary School, points out that many of the students currently learning via the IM curriculum are at a disadvantage compared to students in years past. The main reason is that COVID kept many of these students out of the classroom. Research shows the pandemic years may have negatively affected these students in key ways.

However, Fornaro emphasizes that, even with these unprecedented obstacles to learning success, the IM curriculum is uniquely suited to engage *all* students. She says: "This group, because they were in first grade during COVID, they have a hard time. There are a lot of social pieces missing. So, I think they're struggling to work independently without me holding their hands. It's been more challenging, but I feel like they're actually learning with the IM curriculum. The students are doing the learning.

"Our principal always talks about passive learning. A lot of the time with the previous curriculum, it was great, but it said: here is exactly what you say, here's exactly how the student should solve it, etc. The IM curriculum is more: here is what you don't say, and here is what the student should get from that. So, I think they're actually engaging in the learning, versus me telling them what they should be learning, thinking, or feeling. Once you give them a chance to fail, their brain makes up for that and starts being successful."

The Greeley-Evans School District believes that Illustrative Mathematics provides the right framework to truly give students a real chance to succeed — on their own terms. Students can see themselves reflected in the mathematics curriculum and learn it from the inside out. This gives them a unique opportunity to pave their own way. The IM curriculum is helping *all* students discover their math identities — to see themselves as problem solvers inside and outside of the classroom.

I feel like they're actually learning with the IM curriculum. The students are doing the learning."

ANTONIA FORNARO, 4TH GRADE TEACHER, MEEKER Elementary school OVERVIEW 🔀

The IM Classroom

This case study demonstrates that for educators in Greeley-Evans, diversity is not simply a descriptive element of their student body. Diversity offers an incredible asset to learning both within and beyond the classroom. A culturally responsive district like Greeley-Evans creates the environment in which teachers and school leaders can incorporate IM's curriculum to ensure that all students know, use, and enjoy mathematics. By choosing Imagine Learning as their IM Certified® Partner, Greeley-Evans has overcome many of the challenges of adopting a new curriculum and has emerged as an exemplar of the IM Classroom.



WHAT IS THE IM CLASSROOM?

Teachers and students use an IM Certified[®] curriculum and practice IM's problem-based instructional model with integrity.

Teachers participate in IM Certified[®] Professional Learning and have access to implementation support.

School and district leaders understand and support the systemic changes that are necessary to change teachers' practice.

Families and communities are engaged with and support their students' learning.



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Does your school or district exemplify the IM Classroom? Share your experience with us at https://illustrativemathematics.org/im-experience/

GREELEY-EVANS IM ADOPTION TIMELINE

AUG 2020 Started the adoption process

FALL 2020

Initiated contact with IM and IM Certified[®] Partner, Imagine Learning

SPRING 2021

Math Committee review. Family and community input sought

APR 2021

Imagine Learning Illustrative Mathematics, an IM Certified® Partner, chosen as the adopted program

FALL 2021

First year of adoption, Imagine Learning Illustrative Mathematics Grades K-5

AUG 2021*

IM Certified® "Teach and Learn" Professional Learning (On site)

SEP 2021

IM Certified® "Unit Planning Guide Launch" Professional Learning for Leaders

OCT 2021

IM Certified® "Teach and Learn" Professional Learning (On site)

JAN 2022*

IM Certified[®] "Planning with a Focus on Student Thinking" Professional Learning (Virtual)

MAR 2022*

IM Certified® "Understanding Math Content Progressions Across Grades" Professional Learning (On site)

FALL 2022*

Second year of adoption, K-5

*Denotes Imagine Learning Customer Success Manager district data reviews.

I really like that I can easily access IM units and lessons from prior grade-levels to help meet students' needs. If a student is struggling on a fourth grade standard, I can use the coherence map to pull a lesson from IM's third grade curriculum and use it as a scaffold to support gradelevel learning."

DISTRICT-OPERATED SCHOOLS

ANTONIA FORNARO

With IM, our students have more of a math identity; they are seeing math a different way. The curriculum brought more opportunities to develop conceptual understanding and fluency through problem-based learning."

Students really like the diversity they see in the images within the curriculum. They say, 'That kid looks like me!' They get so excited to see images they can relate to." As we have implemented Illustrative Mathematics, we are not finding holes in the program as we have found with others. We found that the program is very intentional in how things are presented and in the scope and sequence which has been really good for our students."



#WEAREDISTRICT6

I like that the warm-up routines are very invitational and subtly tied into the lesson. Students start the lesson with something they can already do, or something they can have success with, which invites them to be a part of the math."



We are starting to see a shift. Teachers who maybe weren't convinced in the past are starting to witness shifts in their classrooms as students engage in mathematical discourse. They are starting to really see the benefits of the curriculum." JOHN FISCHER



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