**高三年级英语第5课时《阅读理解—说明文》学习指南**

**【学习目标】**

1. 掌握说明文题目特点；

2. 理解说明文解题策略；

3. 练习运用解题策略进行说明文阅读答题。

**【学法指导】说明文做题策略**

1. 说明文三要素法

说明对象：要抓住说明对象实质性特征

说明过程：了解说明手法（举例，比较，定义等），理清文章结构，帮助寻找重点

说明结论：归纳总结，写作意图

2. 主线阅读法：抓主题句，通常是每段的开头或结尾

3. 先缩后扩：在分析长难句时，先缩，即首先找出句子的主语、谓语、宾语，这样就抓住了句子的主干，也就从整体上把握了句子的结构。后扩，分析句子主干以外的从句或短语的功能以及和主干的相互关系，可以帮助理解句意。

4. 快速定位：根据题干中的关键词，快速定位答案所在段落或句子，进行精读，从文中精准寻找答案。

5. 排除法：因说明文文体特征，当考查细节理解时，可能出现多个干扰项，这时需采用排除法，回原文找出处，排除干扰项。

**【学习任务】**

**6城区期末试题中的说明文：**

1. **2020.1朝阳期末C**

**Learning Colour Words**

In the first few years of their lives, children brought up in English-speaking homes successfully master the use of hundreds of words, including those for objects, actions, emotions, and many other aspects of the physical world. However, when it comes to learning colour words, the same children perform very badly. If shown a blue cup and asked about its colour, typical two-year-olds seem as likely to come up with “red” as “blue”.

Cognitive (认知) scientists at Stanford University in California supposed that children’s incompetence at colour-word learning may be directly linked to the way these words are used in English. They are used mostly in pre-nominal position (e.g. “blue cup”), in contrast to post-nominal position (e.g. “The cup is blue.”). The difficulty children have may simply come down to the challenge of having to make predictions from colour words to the objects they refer to, rather than from the objects to the colour words.

To explore this idea further, the research team recruited 40 English children aged between 23 and 29 months and carried out a three-phase experiment. It consisted of a pre-test, followed by training in the use of colour words, and finally a post-test that was identical to the pre-test. The pre- and post-test materials comprised six objects that were unfamiliar to the children. There were three examples of each object in each of three colours—red, yellow and blue. The objects were presented on trays (托盘), and in both tests, the children were asked to pick out objects in response to requests in which the colour word was either a pre-nominal (“Which is the red one?”) or a post-nominal (“Which one is red?”).

In the training, the children were introduced to five sets of familiar items (balls, cups, crayons, glasses, and toy bears) in each of the three colours. Half the children were presented with the items one by one and heard them labeled with colour words used pre-nominally, while the other half were introduced to the same items described with a post-nominal colour word. After the training, the children repeated the selection task on the novel items in the post-test. Correct choices on items that were consistent across the pre- and post-tests were used to measure children’s colour knowledge.

According to the assessment, children’s performance was consistent when they were both trained and tested on post-nominal adjectives, and worst when trained on pre-nominal adjectives and tested on post-nominal adjectives. Comparing the pre- and post-test scores across each condition revealed a significant decline in performance when children were both pre- and post-tested with questions that placed the colour words pre-nominally.

38. What is the purpose of Paragraph 2?

A. To present a phenomenon. B. To make a contrast.

C. To give a possible explanation. D. To provide an example.

39. What can we learn about the experiment from the passage?

A. The children had to place the pre- and post-test objects onto coloured trays.

B. The children were presented with the same objects in the pre- and post-tests.

C. Pre-nominal questions were less used than post-nominal questions in the training.

D. The researchers aimed to look for consistencies in children’s knowledge of word order.

40. What does the underlined word “novel” in Paragraph 4 probably mean?

A. Imaginary. B. Unknown.

C. Familiar. D. Common.

41. The outcome of the experiment shows that \_\_\_\_\_\_.

A. children are unable to accurately sort objects by colour

B. children trained on pre-nominal adjectives perform well

C. children learn colour words rapidly in post-nominal position

D. children can make predictions from the objects to the colour words

**【解析】**

1. C：主旨大意题，考查说明过程（下定义法），第二段开头：由科学家提出了一个观点，并在后文解释了这个观点中涉及的相关定义，故选C。可能出现的干扰项是B，因为文中也提到了in contrast to，但要注意这是涉及到的两个相关定义的对比，不是主线。
2. B： 细节理解题，应采用主线阅读法，定位到文章第三段，关于experiment，介绍三段式实验，前测、训练和后测，后侧内容和前测内容identical(完全相同)，故选B可能出现的干扰项是D，因不认识identical，退而求其次选择研究人员目的在于寻找孩子们词序知识的一致性。
3. B：推测词义题，novel用于修饰item，而且是后测中的item，定位到文章第三段，前后测中的物品是六种孩子不熟悉的物品，unfamiliar，故选B。答案出处离划线词较远(global)，考查全文理解、整合能力，能否快速准确定位是关键。可能出现的干扰项是C，In the training, the children were introduced to five sets of familiar items (balls, cups, crayons, glasses, and toy bears) in each of the three colours.只看见了item，没有关注是in the training.
4. C：推理判断题，考查说明结论，应定为到文章结尾：对比前后测分数可知，当孩子前后测都采用pre-nominal的方式时，孩子的表现有显著下滑(revealed a significant decline in performance)，反推可得答案为C，在post-nominal position时可快速学习。

**小结：**

38.41.考察了说明文三要素中的说明过程和说明结论，提示我们在说明文的阅读中，要牢牢把握说明文三要素；

41为推理判断题，在文章中跨度大，对文章整体把握要求高，重视主线阅读；

39.不认识identical，影响做题，要扎实掌握课表词汇

1. **2020.1东城期末C**

Surrounded by the sea off the coast in Mid-Norway, lies an island called Myken. This small island has about ten permanent residents, and for more than 50 years has been supplied with electricity via a 32-kilometer undersea cable（电缆）. A break that appeared in the cable last autumn resulted in two months without power, so the island community started looking into a better way of sourcing their electricity.

“Myken is far out at sea, so as far as possible it should be taking care of things itself,” says Kyrre Sundseth, who is a hydrogen（氢） researcher in Norway and also the project manager for Myken’s [energy project](https://techxplore.com/tags/energy+project/). “This is why we want Myken to become entirely self-sufficient in energy. It is also important to take the environment into consideration,” he says.

Much points to the idea that the solution may lie in a [hydrogen](https://techxplore.com/tags/hydrogen/) plant, specifically tailored for small [islands](https://techxplore.com/tags/islands/). The “raw materials” for [hydrogen production](https://techxplore.com/tags/hydrogen+production/) come from nature itself in the form of the sun and wind. Researchers have calculated that energy costs will be lower by using hydrogen production than the undersea cable option. And it is possible to store energy in the form of hydrogen for longer periods. This means that supplies will not have to rely on a lot of expensive batteries or external energy sources, even during periods when the sun isn’t shining, or the wind isn’t blowing.

The Myken project has attracted several technology companies. They are currently working on a [pilot project](https://techxplore.com/tags/pilot+project/). The pilot involves experiments on the feasibility（可行性） of the hydrogen system in which electricity is generated from solar and wind sources. The electricity can be used immediately, but during periods when all the energy generated is not required, the spare energy can be used to split seawater into hydrogen and oxygen. The hydrogen can be stored in a tank, and used later to generate electricity. The pilot will help researchers know more about how effectively the system will work in the hydrogen plant.

Since the island has a distillery（酿酒厂）, where the distillation（蒸馏） process relies on energy, a hydrogen plant on Myken offers an even greater environmental benefit. Spare heat from the hydrogen system can also be used for the heating part in the distillation process.

“In Norway alone there are about 300 islands inhabited all year round by small populations,” says Kyrre Sundseth. “All of these islands may be candidates for using this technology. In global terms we’re talking about 10,000 similar islands.”

38. Why is a hydrogen plant suitable for Myken?

A. It is perfect in size for small islands.

B. It can send electricity to faraway places.

C. It will restore local natural environment.

D. It provides green and sustainable energy.

39. What is mainly talked about in Paragraph 4?

A. The study on the energy storage.

B. The test on the hydrogen system.

C. The experiment on the raw materials.

D. The research on the innovation of the pilot.

40. According to the passage, a hydrogen plant will \_\_\_\_\_\_.

A. produce purified seawater

B. prove more technically reliable

C. contribute in more than one way

D. benefit from the distillation process

41. What does Kyrre Sundseth think of the project?

A. Promising. B. Systematic.

C. Irreplaceable. D. Time-saving.

**【解析】**

1. D：细节理解题，根据题干关键词why定位到文章第二段This is why we want... ，后提到“also important to take the environment into consideration”提出考虑环境，对应D选项中的“green”；本文考查说明过程，除了第二段，还有文章第三段提出的“energy costs will be lower”和“store energy in the form of hydrogen for longer periods”，表明“成本更低”和“能源储存时间更长”，对应D选项中的“sustainable(可持续的)”，故选D。
2. B：主旨大意题，定位到文章第四段，采取主线阅读法，开头提出了关键词pilot project；后面遇到了长难句，采用先缩后扩的方法分析句子，这个项目包含了实验(The pilot involves experiments)，实验是关于hydrogen system可行性的(on the feasibility of the hydrogen system)；本段结尾还提出了“ know more about how effectively the system will work in the hydrogen plant”，即hydrogen system的有效性，故答案选B。可能存在的干扰项为D，文章虽然提到了pilot，但并非文章主线内容。
3. C：细节理解题，根据关键词“a hydrogen plant”定位到第五段“Since the island has a distillery（酿酒厂）, where the distillation（蒸馏） process relies on energy, a hydrogen plant on Myken offers an even greater environmental benefit. Spare heat from the hydrogen system can also be used for the heating part in the distillation process. ”，即氢能发电站的多余热量可服务于酿酒厂的整流过程，故答案为C。干扰项可能为B“证明技术上更可靠”，可能受第三段内容影响出现误选。
4. A：推理判断题，根据关键词定位到最后一段，可以得出这项技术会有大量使用的潜在可能性，故答案选A(有前景的)。B意为成体系的；C意为无可替代的；D意为节省时间的。

**小结：**

38.考查说明过程，要对说明文的结构有整体把握，准确定位答案所在区间，整合归纳；

40.41.均有明显提示词，根据题干中的关键词，快速定位答案所在段落或句子，进行精读，从文中精准寻找答案。

1. **2020.1西城期末Ｄ**

According to a new study, teens focus on rewards and have a hard time learning to avoid punishment or consider the consequences of alternative actions.

University College London researchers compared how teens and adults learn to make choices

based on the available information. They tracked the way in which 18 volunteers aged 12⁃17 and

20 volunteers aged 18⁃32 completed tasks in which they had to choose between abstract symbols.

Each symbol was consistently associated with a fixed chance of a reward, punishment, or no outcome. As the trial progressed, participants learned which symbols were likely to lead to each outcome and adjusted their choices accordingly. Teens and adults were equally good at learning to

choose symbols associated with reward, but teens were less good at avoiding symbols associated with punishment. Adults also performed significantly better when they were told what would have

happened if they had chosen the other symbol after each choice, while teens did not appear to take this information into account.

“From this experimental lab study we can draw conclusions about learning during the teen years. We find that teens and adults learn in different ways, something that might be relevant to education,” said lead author Dr.Stefano Palminteri. “Unlike adults, teens are not so good at learning to adjust their choices to avoid punishment. This suggests that incentive systems based on

reward rather than punishment may be more effective for this age group. Additionally, we found that teens did not learn from being shown what would have happened if they made alternative choices.”

To interpret the results, the researchers developed computational models of learning and ran simulations (模拟) applying them to the results of the study. The first was a simple model, one that learned from rewards, and the second model added to this by also learning from the option that was not chosen. The third model was the most complete and took the full context into account, with equal weight given to punishment avoidance and reward seeking. For example, obtaining no outcome rather than losing a point is weighted equally to gaining a point rather than having no outcome.

Comparing the experimental data to the models, the team found that teens’ behavior followed the simple reward⁃based model while adults’s behaviour matched the complete, contextual model. “Our study suggests that teens are more receptive to rewards than they are to punishments of equal value,” said senior author Dr. Sarah-Jayne Blakemore. “As a result, it may be useful for parents and teachers to frame things in more positive terms.”

42. It can be learned from the study that \_\_\_\_\_\_\_\_\_\_\_\_.

A. adults made choices faster than teens

B. adults understood rewards better than teens

C. teens reacted better to reward than punishment

D. teens were aware of the outcome of each choice

43. What do we know about the three computational models?

A. They reflected people

B. They gave circumstances different degrees of consideration.

C. They paid equal attention to reward and punishment.

D. They shaped the behavior of people at different ages.

44. The underlined word “receptive” in the last paragraph probably means \_\_\_\_\_\_\_.

A. accustomed B. opposed

C. sympathetic D. responsive

45. According to the writer, which of the following statements works best for teens?

A. “If you insist on doing things in this way, you will lose ten points.”

B. “If we had talked about this earlier, you wouldn’t have made the mistake.”

C. “If you hand in your assignment ahead of time, you will get an extra bonus.”

D. “If you want to approach a problem differently, you can talk to your parents.”

**【解析】**

1. C：细节理解题，考查说明结论，由第三段可知，青少年和成人在做出与奖励相关的选择时表现是equally good，即一样好的，但是，青少年在规避做出与惩罚相关的选择时表现的不好。故答案应选C，青少年对奖励的反馈要比对惩罚的反馈好。干扰项可能为D，容易根据自身想法想当然的选择D选项，而忽视文章中提到的“when they were told what would have happened if they had chosen the other symbol after each choice, while teens did not appear to take this information into account.”，即告知青少年可能发生的后果作用微乎其微。其实，因是考查说明结论，从文章结尾也可知“As a result, it may be useful for parents and teachers to frame things in more positive terms”，青少年对奖励反馈更好，而不是D。
2. B：细节理解题，根据关键词，定位到第五段，考查说明过程，精读第五段可知，根据情况，研究人员设计了计算模型，第一个是简单模型，学习奖励；第二个是加上了学习没有被选的选项；第三个是最完整的，考虑了所有背景，对逃避惩罚和寻求奖赏给予同等的重视。故答案应选B，该模型考虑了不同情况。干扰项可能为A，在第五段开头说了这个模型的目的是解释研究结果(To interpret the results), 后文也分别提到了青少年和成人的行为模式与哪种模型相符，而不是去反映人。
3. D：推测词义题，定位在最后一段，在“our study suggests that”可知识即阐述说明结论部分，由前文“...the team found that teens’ behavior followed the simple reward-based model while ...”可知，青少年的行为符合基于奖励的简单模型，而句中receptive是用来形容青少年对奖励的态度的(与惩罚相比)，故答案应选D(乐于接受的)。A选项意为习惯于；B选项意为强烈反对的；C选项意为同情的。
4. C：推理判断题，根据题干可知考查对说明结论的应用，应定位到文章结尾寻找答案。由“As a result, it may be useful for parents and teachers to frame things in more positive terms.”可知，教师和家长采取积极的方式描述事物是更有帮助的，故答案应选C，即如果你提前上交作业，能够得到额外的奖励。

小结：

42.44.45.三个题目均围绕说明结论，掌握说明结论即掌握了文章大体走向；

1. **2020.1海淀期末 C**

One day, gardeners might not just hear the buzz of bees among their flowers, but the whirr of robots, too. Scientists have managed to turn an unassuming drone (无人机) into a remote-controlled pollinator (授粉媒介) by attaching horsehairs coated with a special, sticky gel to its underbelly.

Animal pollinators are needed for the reproduction of 90% of flowering plants and one third of human food crops. Chief among those are bees—but many bee populations in the United States have been in steep decline in recent decades. Thus, the decline of bees isn’t just worrisome because it could disrupt ecosystems, but also because it could disrupt agriculture and economy. People have been trying to come up with replacement techniques, but none of them are especially effective yet.

Scientists have thought about using drones, but they haven’t figured out how to make free-flying robot insects that can rely on their own power source without being attached to a wire. “It’s very tough work,” said senior author Eijiro Miyako, a chemist at the National Institute of Advanced Industrial Science and Technology. His particular contribution to the field involves a gel, one he’d considered a mistake 10 years before and stuck in a storage cabinet. When it was rediscovered a decade later, it hadn’t dried up or degraded at all. “I was so surprised because it still had a very high viscosity,” Miyako said.

The chemist noticed that when dropped, the gel absorbed an impressive amount of dust from the floor. Miyako realized this material could be very useful for picking up pollen (花粉). He and his colleagues chose a drone and attached horsehairs to its smooth surface to mimic a bee’s fuzzy body. They coated those horsehairs in the gel, and then controlled the drones over lilies, where they would pick up the pollen from one flower and then deposit the pollen at another one, thus fertilizing it.

The scientists looked at the hairs under a scanning electron microscope and counted up the pollen grains attached to the surface and found that the drones whose horsehairs had been coated with the gel had about 10 times more pollen than those that had not been coated with the gel.

Miyako does not think such drones would replace bees altogether, but could simply help bees with their pollinating duties. There’s a lot of work to be done before that’s a reality, however. Small drones will need to become more controllable and energy efficient, as well as smarter, with better GPS and artificial intelligence.

58. What does the underlined word “viscosity” in Para. 3 probably mean?

A. Hardness. B. Stickiness. C. Flexibility. D. Purity.

59. We can learn from the passage that \_\_\_\_\_\_.

A. bees disrupt both agriculture and economy

B. scientists have invented self-powered robot insects

C. bees in the United States are on the edge of extinction

D. Miyako found the special feature of the gel by chance

60. A drone works best in picking up pollen when \_\_\_\_\_\_.

A. its body is made like a bee’s

B. its GPS works more efficiently

C. some flowers are coated with the gel

D. horsehairs with the gel are attached to it

1. According to Eijiro Miyako, the dress\_\_\_\_\_\_\_\_\_\_.

A. are not yet ready for practical use

B. may eventually replace bees in the future

C. are much more efficient than bee pollinators

D. can provide a solution to economic depression

**【解析】**

1. B：推测词义题，定位到文章第三段“When it was rediscovered a decade later, it hadn’t dried up or degraded at all. “I was so surprised because it still had a very high viscosity,”Miyako said.The chemist noticed that when dropped, the gel absorbed an impressive amount of dust from the floor.可知，Miyako惊喜的发现gel(凝胶；胶水)还没有干或者退化，并且从gel能够吸尘受到了启发，研制了授粉无人机，故答案为B，粘性。A选项意为硬度；C选项意为灵活性，可能构成一定干扰，但由“it hadn't dried up”可排除；D选项意为纯度。
2. D：细节理解题，可以采用排除法，逐一排除错误答案。A选项，原文关键词是蜜蜂的减少令人担忧，因为可能破坏生态系统、农业和经济。B选项，原文科学家们还为相处如何制作自由飞行的昆虫机器人。C选项，文中只提到了数量急剧下降，并没有说濒危。D选项，从文中可知，他发明的凝胶，十年前他以为这是一种错误，可知是偶然机会发现了凝胶的特殊之处，不是专门发明的，故答案为D。
3. D：细节理解题，根据题干中的关键词定位到第五段，科学家们在显微镜下发现那些涂有凝胶的马毛上的划分是那些没涂凝胶的10倍，故答案选D。此句较长，应用先缩后扩的阅读方法，found that后面的宾语从句内容是科学家们发现的研究结论，应为精读重点。
4. A：细节理解题，根据题干关键词准确定位文章最后一段指出，这项工作在付诸实践前还有很多工作未完成，故答案为A。可能存在的干扰项是C，但文中并未提及这一观点，不可主观臆测。

**小结：**

细节理解题不是简单的回文章找到答案即可，需要一定的理解和内化，要求较高，所以在反复精读长难句时，画出关键词和主干结构很重要。

59.采用排除法做细节理解型的题目时要注意：干扰项可能是文中某个具体事实或细节；可能是从文中某些(不完全的)事实或细节片面推出的错误结论；可能是非文章事实的主观臆断。正确答案根据文章全面理解而归纳概括出来；不能太笼统、言过其实或以偏概全。

1. **2020.1丰台期末D**

Plants do not listen to the radio. But a team of researchers in Greece recently found a way to turn lemons into very small “radio stations” that can broadcast information about their trees’ moisture content to a smartphone—the first step toward creating what the researchers call an “Internet of plants.”

Scientists had previously attached sensors to trees to measure their water use, but “no other team had created a wireless radio network among plants, sending information while consuming only a few microwatts and costing just a few dollars,” says project leader Aggelos Bletsas, a professor of electrical and computer engineering at the Technical University of Crete.

The network consists of several basic components: an existing FM radio station, an antenna (天线) attached to a lemon growing on a tree, a humidity (湿度) sensor in the lemon, a transistor connected to an antenna and an FM receiver. First, the antenna picks up the signal from the FM station, and then passes the signal to the transistor, which is modulated by the humidity sensor. The sensor switches the transistor on and off at a rate dependent on the plant’s moisture level: if the soil is wet or if the atmosphere is humid, that rate is lower; if it is dry, the rate is higher. Finally, the antenna broadcasts this information to the radio receiver on a mobile phone.

In this way, plants can tell farmers if they are thirsty. “We can literally ‘listen’ to the moisture of the plant, using our mobile FM radio with a $3.4 sensor,” Bletsas says. “Two of these sensors for every acre on any given farm might change the way we conduct agriculture and ‘understand’ plants.” He notes that more sensors may be needed for the best possible results. Such real-time information could enable better control of air and soil moisture.

Why go through all this trouble and not just use already common wireless technology, such as Bluetooth? “Not only is our technique less complex, as we are just borrowing signals in the environment,” Bletsas says, but “a Bluetooth-based sensor costs about $25. Our final aim is to launch sensors onto the market costing less than $1.”

“Bletsas and his team are completely changing the way of environmental sensing using very simple equipment and surprisingly little power,” says Alexandros Dimakis, an associate professor of electrical and computer engineering at the University of Texas at Austin, who was not involved in the research. “Their work could be a transformational Internet of Things technology for agriculture and for monitoring the environment.”

Bletsas and his colleagues have already applied for a patent for their innovative technology in America.

42. The radio network created by Greek researchers \_\_\_\_\_\_\_\_\_.

A. consumes much energy B. can be put in a smartphone

C. uses simple technology at low cost D. broadcasts radio programs to plants

43. What does the underlined word “modulated” in Paragraph 3 mean?

A. Monitored. B. Adjusted. C. Measured. D. Connected.

44. What is Alexandros Dimakis’ attitude to the “radio network”?

A. Positive. B. Critical. C. Neutral. D. Doubtful.

45. What is the purpose of the passage?

A. To discuss methods of studying plants.

B. To assess the efficiency of Internet of plants.

C. To stress the importance of keeping soil’s moisture.

D. To introduce a new way of measuring plants’ water use.

**【解析】**

1. C：细节理解题，需采用排除法，回原文找出处，排除干扰项。A选项，原文提到只用很少能源，故排除；B选项可能是干扰项,原文中是把讯息传到手机上，不是把radio netwaor放在手机里；C选项原文提到了这个技术不那么复杂，同时价格可以很低，故选C。
2. B：推测词义题，由后面的一句话可以知道，这个传感器是switch the transistor on and off，即开关晶体管，所以答案应为B，即调节。A意为监控；C意为测量；D意为连接，均与句意不符。
3. A：推理判断题，画出关键词（人名），定位在文章末尾可以找到他对这个项目的评价，对农业和环境监测来说是一个变革性物联网技术，可见评价是正面积极的，故选A。B意为批判的；C意为中立的；D意为怀疑的。常见的态度还可能有：indifferent漠不关心的；negative消极的；suspicious怀疑的等。
4. D：主旨大意题，定位在文章开头结尾，文章开头就说了是介绍一项新的研究，后面也都是围绕说明这项研究的过程和结论，故答案选D。

**小结：**

快速定位：根据题干中的关键词，快速定位答案所在段落或句子，进行精读，从文中精准寻找答案。